THE *Marconi* COMPANIES
AND THEIR PEOPLE

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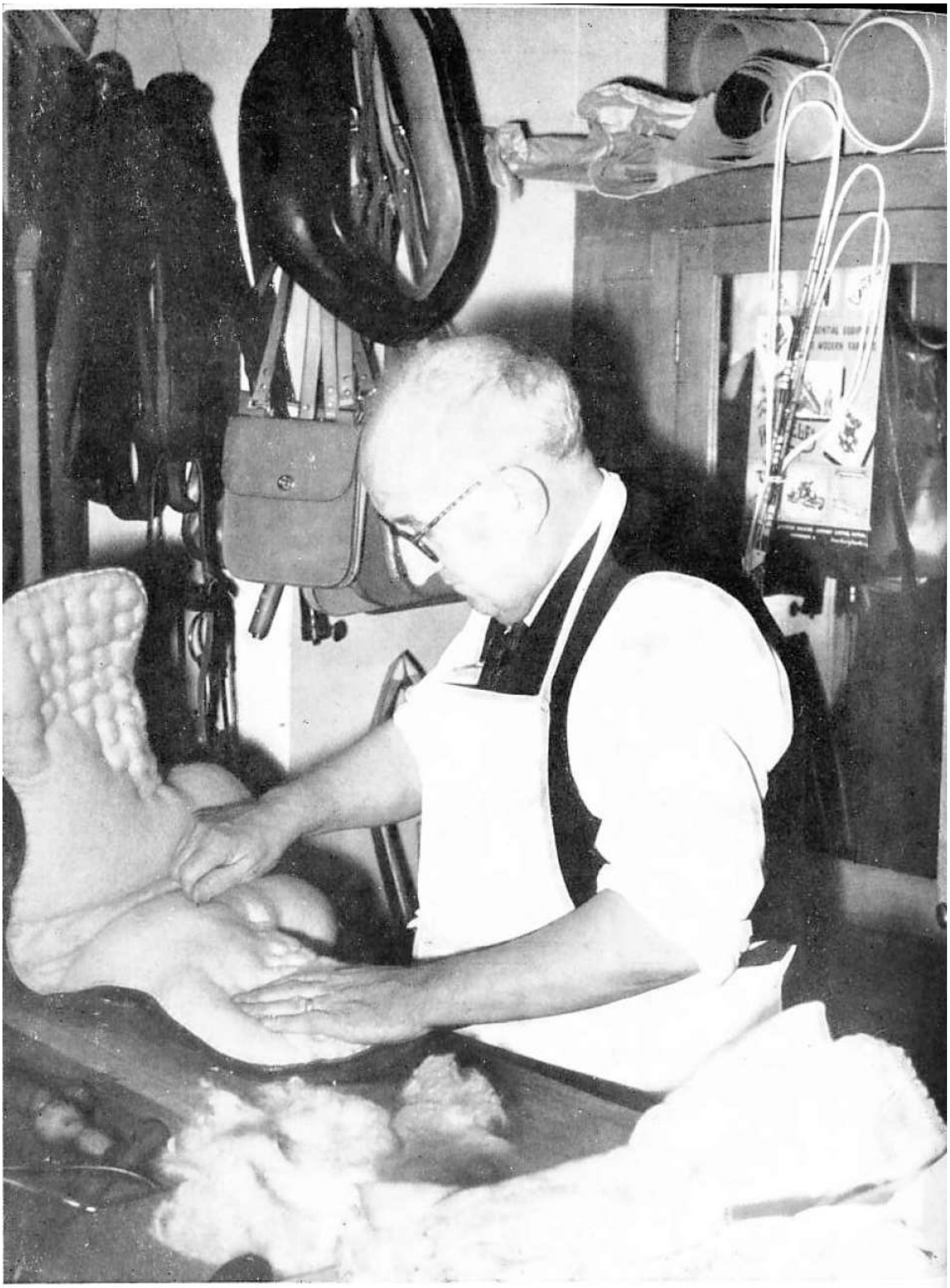

CRAFTSMANSHIP. *The sadler moving the stuffing in the serge lining of a riding saddle with a seating awl, to ensure a good fit for both horse and rider*

THE MARCONI COMPANIES AND THEIR PEOPLE

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This month's front cover shows connecting wires being soldered to a crystal plate at Hackbridge. The very fine wires are sweated by hot air to the silver spots on the plate by Mrs. Fossey

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The Product Engineering Section at Hackbridge, where new designs are conceived. D. Fairweather with N. Beane and Miss A. Wright, two of his assistants

CRYSTAL CLEAR

"What do they know of Marconi's who only Chelmsford know?"

IF YOU TAKE the electric train from Victoria or London Bridge and get out at Hackbridge, a few miles west of Croydon, you will see the back of a modern building. This is the Company's works for the production of crystals in Park Road, a quiet cul-de-sac a few minutes walk from the station.

The property was acquired by the Company in 1934 and was first opened as the Aircraft Wireless Establishment under Captain J. M. Furnival, a pioneer radio engineer and for many years Chief of Aircraft Division.

The establishment was within easy reach of Croydon Aerodrome, then London Terminal Airport.

In those days the ground floor was laid out as development workshops for handling prototype models and building pre-production quantities, while full production drawings for the Chelmsford works were prepared by the Drawing Office on the first floor. The development laboratory, test room, and administrative offices were all there.

The Aircraft Wireless Establishment continued as such until just before the war, when the Airborne Development Section was transferred to Writtle and later the headquarters of the Aircraft Department was removed to Chelmsford.

The story of those years of development and production of airborne equipment for the rapidly expanding airlines of the world will, we hope, be told by the Aeronautical Division in a future issue.

In 1940 the works were extended to the mills and so began the wartime Hackbridge with its large production programmes of equipment for the R.A.F.

Out of the small Social Club of the pre-war days sprang the large wartime club centred in Wandle House, and many were the sports and social events. Many, too, were the lively days and nights, but production went on and fortunately the works escaped any serious damage.

The end of the war brought a great change. The "Mills" were vacated and are now occupied by a football pool firm, but the Park Road building remained in the possession of the Aircraft Department until 1949.

Then the building was stripped and completely refitted. The plant necessary for quartz crystal production was installed by the Chelmsford plant engineer's outworkers and although chaos reigned for a week before the opening date, great efforts by all concerned made it possible to open the factory on schedule. Sections long in existence at Chelmsford Works and Baddow Research Establishment moved in under one roof.

The Company supplied crystal drives, accurate to a few parts in one million, to many of the cities of Europe back in 1936. Names then only appearing on orders were to blaze into prominence in World War II—Warsaw, Cracow, Brno, Belgrade, Ankara, Palermo, Tallinn, and many others. In fact, at one time it appeared that the German objective was to capture all cities using Marconi transmitters.

The desert also took its quota of crystal drives. One, which shall be nameless, appeared at intervals on stations along the pipe lines and desert routes. The thermostat failed on one occasion and allowed the crystals and felt lagging to cook briskly. An enterprising engineer

For the first operation of mounting the quartz on the cutting jig, Miss Bartlett uses cement and hot plate

attempted to replace the lost felt and when the drive eventually reached the Works the smell of his replacement seemed to indicate that the material came from the camels of Baghdad.

The Crystal Production Department is responsible to the Works Manager for matters relating to production and from the technical side to the Engineer-in-Chief. The Works Manager, Mr. J. P. Wykes, was himself in charge of the Company's extensive crystal activities during the war. Locally the control is in the hands of Mr. D. Fairweather, Chief of Crystal Production (formerly of Research Section P) and Mr. G. E. Lindsley, Works Superintendent. It was stated in a recent leading article of the magazine that natural crystals were the most stable radio components known. All the quartz crystal units required for the various equipments manufactured at Chelmsford are produced at Hackbridge.

Crystal units are specified by the frequency at which they are required to oscillate or resonate in the sets for which they have been designed, and the Production Department is able to meet demands for almost any frequency at reasonably short notice. Units available are of varying shapes and sizes. The 2-pin Bakelite holders as widely used in the M.I.M.C. transmitters, 7-pin glass "valve" type for communications and aircraft equipment, sub-miniature "valve" type for walkie-talkie, and the larger glass envelope type for broadcast and television transmitters. One of the Company's historic "firsts" was the high frequency crystal in a glass sealed case and Marconi frequency standards (crystal controlled) have been sold throughout the world including the United States of America.

A crystal unit is comprised of a plate of natural quartz crystal with suitable electrodes, electrical connections, and mounting, and one of its major applications is to control and stabilise transmitter frequencies. The range of accura-

The quartz cutting machine being set up by Mrs. Yates

A view of the drill, press, and lapping section: left to right, Mrs. McMahon, Miss Sullivan, Mrs. Garner, Mrs. Monsey

cies may be quoted as from .01 per cent (one part in ten thousand) to a few parts in a million. For accuracies greater than this, circuit adjustments are normally used. The Company has recently installed a number of crystal drives in Italy. The best of these change in frequency by only one part in one hundred million per month or in terms of time the equivalent change would be one half minute in a hundred years.

One or more crystal filters employing up to nine crystal units each are used in commercial receivers extensively manufactured in the Company.

The main raw material of the factory is quartz. It is a mineral stone and one of the earliest crystals known. The word "crystal" comes from the Greek and means "harder than ice". The ancients discovered it in the Alps and from its altitude assumed that it must be some special form of ice. But it was not until the 1880's that Pierre Curie and his wife, who later isolated radium, realised its piezo electrical qualities. This discovery remained a scientific novelty until Professor Cady of America, in the period of the 1914-18 war, made a crystal oscillate in an electrical circuit.

Quartz is found in many parts of the world but that which is most suitable for radio work is mined in the equatorial districts of Brazil. It lies in veins in the rock and in rock deposits and is often dug out with pick and shovel. Through jungle swamp and across sun-bleached prairie it is carried to the sea and shipped, after grading, mainly from Rio de Janeiro to this country.

Individual pieces vary in weight from 200 grammes to three kilogrammes, and it is not uncommon for a shipment sufficient for two months' production at Hackbridge to cost as much as £3400.

The cycle of production begins on the ground floor, where the quartz is cemented to steel mounts suitable for the

The thickness of the plates is being checked with a micrometer by charge hand R. Brabham, while E. Cook, B. Bennison, and E. Wood grind plates to size

cutting machines, and it is sawn into slices, wafers, and plates. The cement used for mounting is expensive, and from time to time experiments have been made to find a cheaper one. A most disconcerting situation arose recently when a highly satisfactory fixative was produced, but all attempts to find a solvent failed.

Because crystal is so hard it can only be cut by diamond impregnated saws. The diamond grit is mixed with special paste and applied to the notches in the rims of copper wheels. Experience has shown that saws prepared like this in the factory give better results than those obtained with wheels marketed commercially in England.

The whole subject of crystals is complex and best left to engineers who have studied the science of crystal production, but briefly we can say that to obtain the best radio crystals from a quartz crystal it must be cut to a specified plan of shape and direction, otherwise the required properties are lost. The angle of cut is continuously checked by X-ray machines, and is just another of the processes which Johnny Gamlen has in his charge on this floor. Johnny will be remembered at Chelmsford as a keen cricketer and tennis player.

After being cut, a plate is lapped (ground) finally by hand, to a special shape and thickness. The lapping must be accurate to within an hundred thousandth of an inch. Final checking is done electrically. But only long experience, patience, and persistence can provide the touch necessary for working to such fine limits, particularly with crystals as thin as .005 inches—twice the thickness of the average sheet of paper.

From now on the plates are taken to the second floor to be finished. Jack Badcock looks after this, assisted by a

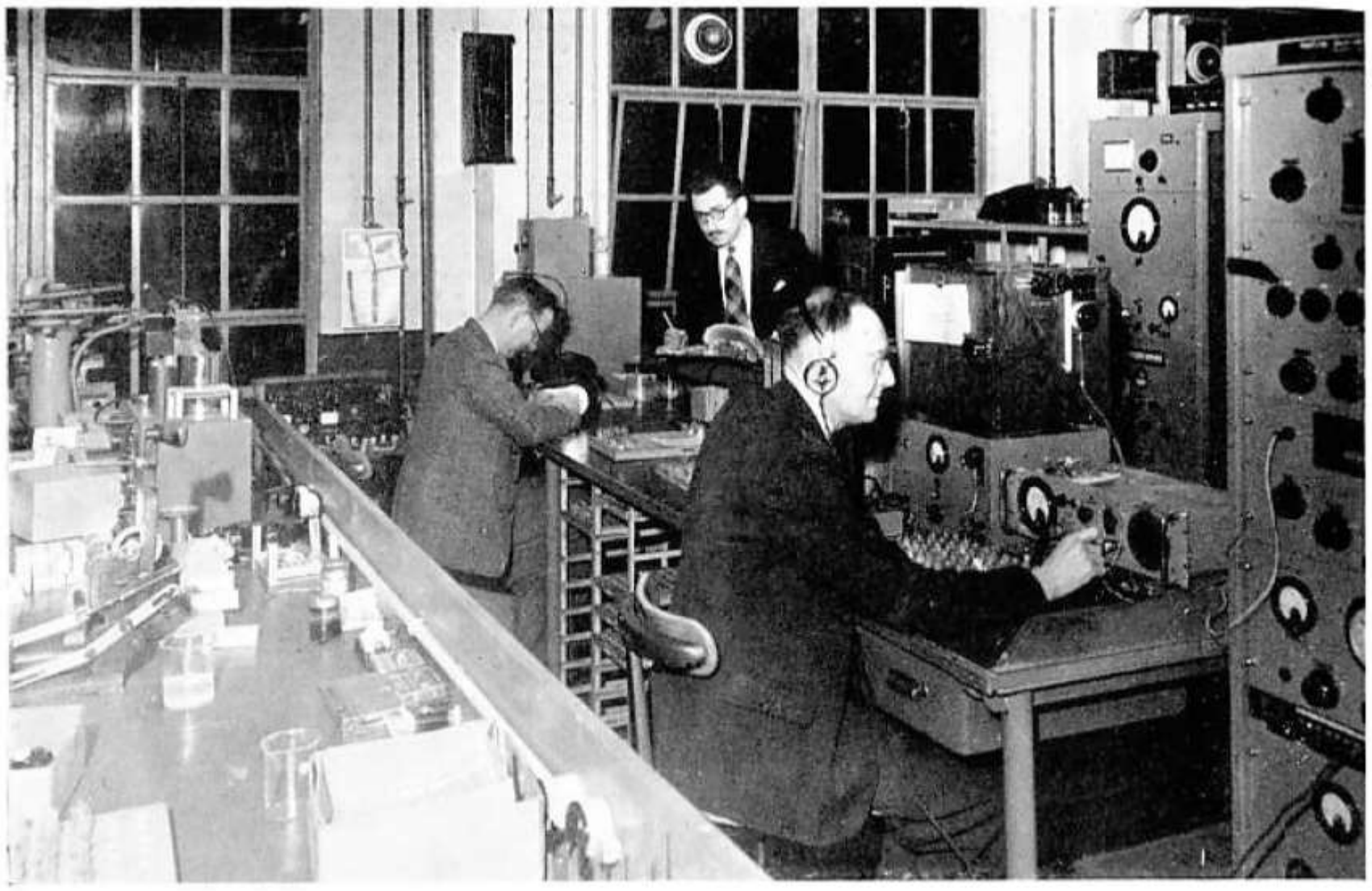
small group of staff technicians who have charge of finishing sections. First comes the chemical cleaning. The method used has varied from time to time, but some of the pioneers still maintain that beer is good and strong beer better. The unbiased engineer now prefers chromic acid, which certainly does not encourage unlawful use.

Production as a whole calls for a high standard of cleanliness and particular attention is necessary to reduce dust, and vacuum cleaners are always in use to augment the normal routine factory cleaning. The wearing of white overalls is encouraged throughout the Works, and care is taken to extend these extra refinements to the canteen where clean white tablecloths are maintained in the dining room shared by staff and hourly paid employees. The constant effort applied to the improvement processes causes frequent headaches. After trying a nylon nailbrush for dry cleaning crystals, it was thought that one of the small power-driven brushes used in dentistry might give good results, so a member of the staff went, with uneasy recollections of his last visit to a dentist, to see what he could do. The local dentist was extremely helpful and co-operative, and produced just what was wanted.

But this was not the only unorthodox article tried out in the search for suitable materials and our colleague has been seen unloading from his car such "scientific" aids as Pyrex dishes, scrubbing brushes, lengths of rope, queer shaped pieces of glass, baking tins, photographic dishes, samples of watchmakers' oil, surgeon's forceps, rubber gloves, dish cloths, and special transformers. His skill in getting the unobtainable is unrivalled, and anyone who knows him will assure you that he could, with equal ease, produce glass nails or a rubber hammer.

A delicate operation is the soldering of the connecting wires to the plate. Only two milligrammes of solder are

Chemical cleaning and silver spotting operations by Mrs. Chapman and Mrs. Richardson



The Crystal Test Section at work

used for each joint and it is heated by hot air jets. The operator uses a magnifying glass, as the average thickness of wire is only eight-thousandths of an inch, but after soldering the joint will stand a direct pull of twelve pounds.

The finishing processes vary according to the type of crystal. The gold plating which forms the electrodes on most crystal plates is applied by means of a vacuum process and by subsequent careful additions of gold to the plates the frequency is adjusted.

The crystals are then mounted in mica cage assemblies made by the spot welding section. The mounting is done by normal soft soldering using miniature irons, and this is when people new to the process discover that they have more thumbs than originally provided by Nature. The glass valve types must be evacuated and sealed, but those in Bakelite holders make mounting an easier mechanical job.

After shop inspection, final testing is carried out by the Test Division representatives, Charlie Venn and his assistants. Finally the finished crystals are packed and despatched to Chelmsford and all those places where orders are sent direct.

There are wide applications for crystals outside the usual transmitter and receiver uses. Supersonic waves easily produced from crystals have been used for the detection of submarines, killing of bacteria in milk, mixing of chocolate, washing of clothes, removal of soot from chimneys, and many other purposes. The Company has been concerned with some of these activities.

The Department constantly supplies crystals at short notice for ships, aircraft, and land stations, and today nearly one hundred Marconi people at Hackbridge combine to produce over one thousand crystal units of various types each week and strive to improve the technique and increase the quantity of production.

The Monte Carlo Rally

BY K. E. CARTER

THIS YEAR'S Monte Carlo Rally has been one long mad rush. That's how it's bound to be, but I didn't bargain for an equally hectic journey home. Now I have been asked to tell you all about it.

You may recognise the names of some of the members of the team. Bill Whitehouse and R. P. Law accompanied me in the first car, with Harold Pilmore-Bedford, William Fewsdale, and my brother Bill (who used to work at Marconi's in Chelmsford) in the second. The third crew consisted of Peter Braid, A. C. Wates, and Major G. Erstwick-Field.

This team's run is all the more interesting because we were fitted up with Marconi Very High Frequency Mobile equipment. You probably know it as the L.67.

As well as the radio gear, we were piled up with spare wheels, jacks, luggage, maps, chains, Thermos flasks, spades, lamps, and enough food to keep us going throughout the journey. In fact, everything but the kitchen stove. And still we had to look as if we were just going for a gentle afternoon's drive in Hyde Park—there is a prize for immaculate cars.

We left Glasgow at about 1.30 p.m. and, after travelling almost non-stop, made a special stop at Lewisham, where Marconi engineer J. R. Goodchild had fitted up his fixed station equipment at a local garage and had radioed us to find out what time we would be arriving.

This enabled the waiting mechanics to have everything ready the moment we arrived—about 3 a.m. They certainly did. After checking the position of the second car by radio, we made a bee-line for the refreshments and let the boys take over.

The aerial was removed and the car passed on to the hydraulic lift. The eight mechanics at once got to work and everything was swiftly and thoroughly overhauled. Nothing was left to chance. Meanwhile, Goodchild checked the V.H.F. equipment. A few minutes later

The team of three Marconi-equipped Humber Hawks which won the Silver Cup for the best radio installation at this year's Monte Carlo Rally. Four of the drivers (left to right): H. Pilmore-Bedford, R. M. Carter, K. E. Carter (World Champion 500 c.c. racing driver for 1950), and W. Whitehouse (international racing driver)

The team outside Buckingham Palace

the second car came in, a radio call to the third car, and the same procedure was followed.

Feeling confident after the lightning check-up, we started off for Folkestone. On the cross-Channel steamer we took our one and only opportunity of sleeping.

From Boulogne we had to take a route through Belgium and into Holland, where there were control points at Amsterdam and The Hague. Down again through Belgium to a control at Brussels. Into France, Paris, and across to the Alps.

The most hazardous part of the journey was then before us.

The wireless equipment was invaluable. All along the route the first car radioed back its position and by means of landmarks we were able to ascertain the positions of the other two and their average speeds. We were able to advise details of road conditions and detours, and on three occasions warned them of dangerous obstacles in their way—one was a telegraph pole.

Despite the fact that we were well on time, we almost wrecked our chances at the very end. In order not to be too early (all cars must arrive at the set time) we made a stop just above Monte Carlo. Swearing I knew the road inside out and

J. R. Goodchild, of Communications Division, listens for a call to warn him when to expect the first car, while automobile engineers stand by

that it would only take us ten minutes to get there, I persuaded the others to wait twenty minutes. We started off again and, to our horror, discovered it was a distance of ten miles. The last few miles were covered at a speed of eighty m.p.h. and we just made it in time.

Our cars were not powerful enough to win awards in the acceleration and braking tests, the special runs and the mechanical trials, but we were awarded special prizes for the best wireless installations, and in the Beauty and Comfort Class.

I managed to join in some of the festivities but had to bid farewell to the sunshine of Monte Carlo and return to England. Peter Braid, Bill Whitehouse, and my wife accompanied me (she had flown to Monte Carlo) and once more we were on the road travelling non-stop, for although only leaving Monte Carlo on the Wednesday, I had to be at the Park Lane Hotel on Friday night to receive the Dick Seaman Trophy awarded by the "500 Club" for the best performance of the year on the continent in 500 c.c. racing cars.

At Boulogne there were about fifty cars on the dockside. The "grabs" swung down over the top of our car and before anybody could couple them up, the dock workers went on strike. There was only one thing for it. We left the car behind. As the steamer left the harbour, I threw the keys back on to the dockside, shouting, "Tell the crane driver to keep the car".

"En route for Glasgow I took a picture through the windscreen. Monte—here we come!"

I managed to wireless from the ship to a British firm to have a car standing by at Folkestone, and when we arrived, to everybody's amazement, it was a Humber Hawk!

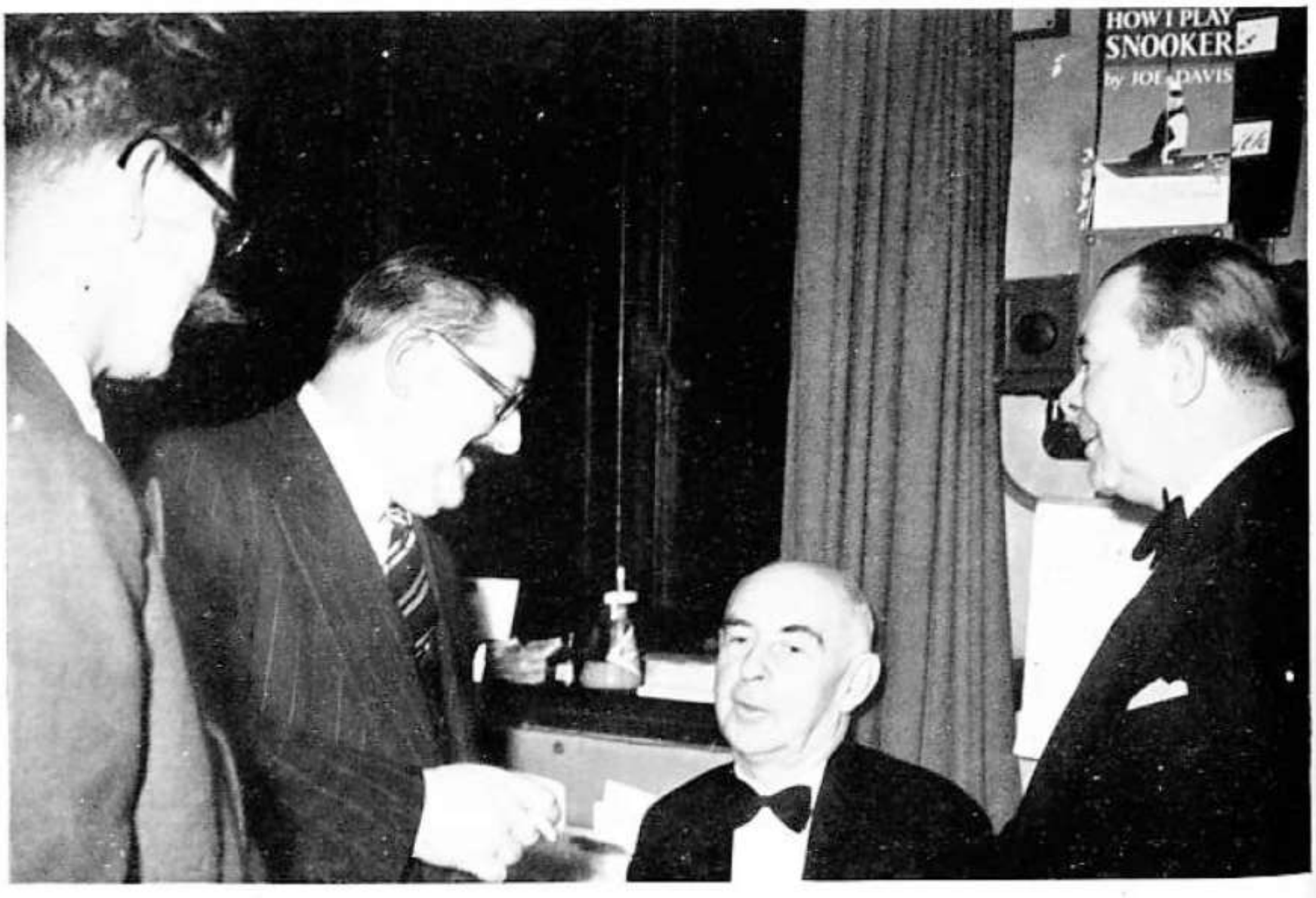
Again we were travelling non-stop with the three of us taking it in turn to drive and we arrived in London at the Park Lane Hotel just in time for the hors d'œuvres.

Taken as the first Humber Hawk arrived at Monte Carlo, this photograph shows K. E. Carter calling up the second car over the Marconi V.H.F. radio installation

SNOOKER TELEVISED

(Above). The B.B.C Television Unit visited the Leicester Square Hall last month to see Joe Davis playing Willie Smith

(Below). After the programme everyone relaxed, including commentator Raymond Glendenning



THE CIRCUS COMES TO TOWN

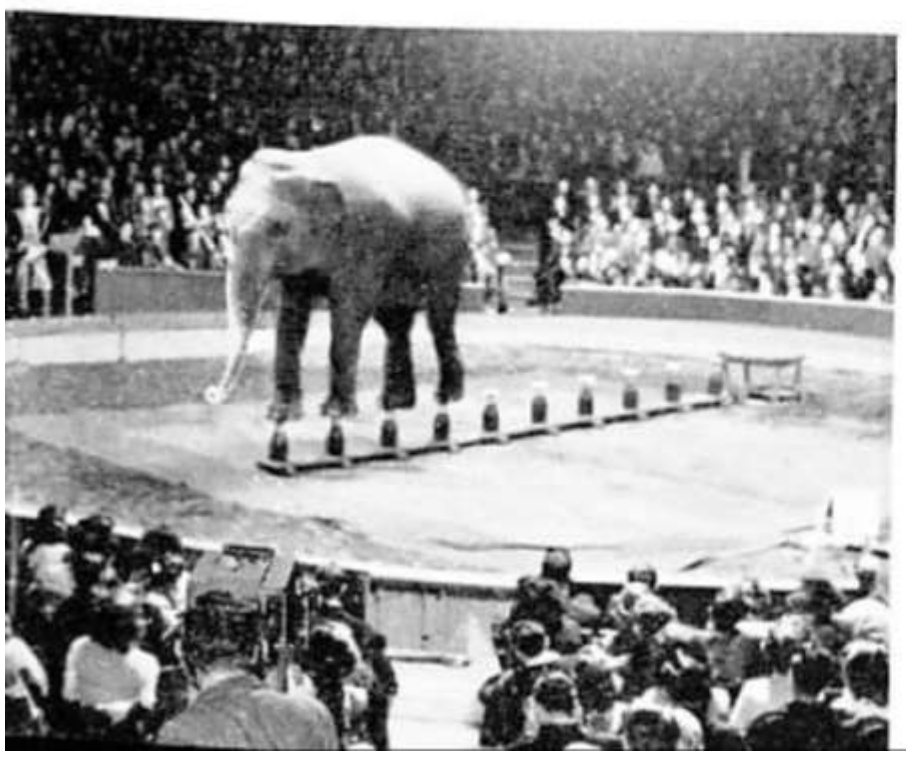
Complete with Television

A FANFARE of trumpets. A hush of expectancy and suppressed excitement falls over the vast arena, the lights go up, the wooden blocks at opposite sides of the ring open and the performers and artistes march proudly through in Grand Parade. Magnificently groomed horses and their dazzling riders, a jolting camel, a snow white, bearded llama, acrobats and clowns, wire walkers and animal tamers . . . all the fun and laughter, the tears and heartbreak of the world's most magnificent and fabulous setting, the bizarre, colourful, spectacle of the Big Top.

On Sunday, 14 January, hundreds of thousands of people joined a capacity audience at Olympia and were transported, through the medium of television, to a world of exotic splendour and breathtaking feats as a specially devised adaptation of Bertram Mills' circus was presented in collaboration with the B.B.C. Television Service.

Three Marconi Image Orthicon cameras were used, two on movable dollies in the aisles and one stationary and higher, to cover the Hollywood Sky Ballet who, seventy feet above the arena, performed the most daring and picturesque feats of strength, agility, and courage ever seen on the television screen.

Televising one of the elephants walking along a line of "bottles"



Coco, the world-famous clown, trying out one of the Marconi cameras

The programme was, of necessity, shorter than the full Bertram Mills' Circus bill but viewers saw many first-rate turns, among them the rhythmic performance of Fischer's three gigantic elephants, one of whom daintily—if such a word can describe so immense a creature—picked her way along a bridge of "bottles". Other turns of note included the horseback gymnastics of the Cumberlands and the Bakers, the semi-oriental mystery of the Bedouin Riders, the Lorandos and their tightwire escapades, the Deblars, world renowned trick cyclists, Wackers Horse Riding Alsatians and Terriers, and the clowns, without whom no circus would or could be complete; Little Billy, Lulu, Gogo, and greatest of them all, Coco . . . Coco the clown, the very embodiment of the circus and all that the circus stands for.

Reception throughout the seventy-five minutes was perfect and the performance was voted one of the most successful of B.B.C. outside broadcasts.

"I WAS THERE"

Urga, Urumchi, Kashgar

Taking Radio Across China. Part II

BY S. T. DOCKRAY

In Part I of this story, published last month, Major Dockray described his journey from Peking to Urga and Urumchi, and the erection of these two stations.

THE FIRST WEEK out from Urumchi was perhaps the hardest part of the whole journey. Our route lay across some of the roughest country in China, over rugged mountain ranges and across vast rivers. There were seldom any bridges, and those which did exist were frail affairs. On the steepest passes we had to double the teams, using all our ponies to pull half the carts up, and then bringing them back again for the other half. Several times carts broke down or began to show signs of weakness, and had to be patched up on the spot.

I made my headquarters with the cart column, where I had my own cart specially fitted for sleeping when the weather was bad. I was well mounted and able to ride with the carts or with the strings of camels and see that all was going well with both parts of the caravan. I had several good riding ponies and a cavalry charger that I had bought from some Russian officers escaping into China. The carts again followed the hard tracks while the camels travelled by narrow tracks where water was more plentiful. They never had to go more than three days without water and this enabled them to make good time. They averaged over two miles an hour, travelling mainly at night, with loads of four hundred pounds. The hardships endured by men and beasts were considerable, and some of the camels and ponies succumbed. However, we had brought ten per cent spare animals and this proved sufficient to make good the losses. The camels covered from twenty to thirty li a day (a li is a Chinese mile) and the carts up to forty li, even though some of them were carrying 1500 catties of steel work. The carts therefore arrived at the halting places ahead of the camels,

S. T. Dockray in his Mongolian travelling kit

The worst pass of all, Ta Pa Cheng

allowing the ponies to be well fed and rested while waiting for the slower transport to catch up.

One of the greatest adventures of this particular journey was the crossing of the swift-running river Yenchi. The entire caravan had to be taken over on improvised rafts which were badly buffeted by masses of ice borne down on the current. The Chinese labour showed great skill and resource and the crossing was completed in two days. Apart from the physical difficulties, our chief sources of irritation were the local officials. They could see no reason for exempting this *Government Enterprise* from the dues they so easily imposed on Chinese caravans, and demands were made for payment of local taxes. At a place called Toxun a demand was made for $40 a cart, and some of the drivers were beaten up before I arrived on the scene.

Once we had crossed the main mountain region the track improved and progress was steady. About once a week we reached a settlement where we were able to get supplies of food for men and beasts and make the necessary repairs to the vehicles. These settlements being virtual oases between barren unpeopled wastes, the provision of water for the ponies on these arid stretches was a serious problem.

At Kuchow, the centre of a large fertile area, we made a longer halt than usual, for the animals were showing signs of fatigue. There I met an interesting Swedish woman living with the Mohammedans. She had been there a great many years and appeared entirely contented with her lot.

Entering the Kashgar region, the country still further improved. The valleys were all cultivated and grain, fruit, and vegetables grew in abundance. At each town, or small settlement, a Chinese official was in charge. To our amusement we heard a rumour, which had somehow got ahead of us, that the caravan was concerned with the construction of a railway from India to Moscow. The docile and simple Turki people had accepted this without hesitation.

During the trip I got some wonderful shooting and obtained several very good "heads" which I later had mounted and kept for many years. I had a high velocity .256 Newton and a .303 Springfield rifle and with my shotgun I shot hares, pheasants, wild duck, and geese and

Ice added to the difficulties of crossing a river on improvised rafts

various types of partridge and sand grouse, all of which helped the larder.

The gang accompanying me were all very keen on my shooting antelope or wild pig, as this meant a good feast of fresh meat.

Food for myself I had arranged in special boxes so that if any got lost or broken up I always had a sufficient unit of tea, sugar, and tinned goods. We were of course able to purchase fresh supplies of eggs, fruit, and vegetables when passing through habitation. The flocks of wild geese and duck during the migratory season were unbelievable—thousands and thousands flying from Siberia to the south. I believe their ultimate destination was Kashmir.

I reached Kashgar on 24 December 1922, and met the British Consul-General, C. P. Skrine (later knighted) and his charming wife, and the Vice-Consul, Mr. Harding, whom I had met in Peking. All these kind people gave me great assistance. A large building previously occupied by the Russo-Asiatic Bank was allocated to me for the storage of all the equipment and materials, which arrived in very good condition and with very few breakages.

In Kashgar no obstacles were placed in our way, all officials being very helpful and very interested in the prospect of having wireless communication with Peking and India. A site was chosen on a rising plateau a few miles from the town, and work proceeded apace. The station was completed in May 1923.

During the construction of the steel towers rumour had it that the "foreigners" intended to bury the hearts of a number of small boys beneath the foundations. I believe it was customary in bygone times to make such sacrifices so that high buildings should be safe. But with the efforts of the officials and invitations to the priests and local inhabitants to witness the actual foundation work, this superstition was dispelled.

Immediately the station was finished, communication was established with India and news was received daily from

Leafield, Nauen, and Moscow. Its circulation was received with delight by the British Consul-General, the Chinese officials, and the leading residents. We heard of Mr. Baldwin's appointment as Prime Minister on the first day of operation, and of course it was the first time that such a thing had been known in the heart of Central Asia on the actual day of the appointment.

Kashgar itself is said by some historians to be the original Garden of Eden. All around it the land is rich and fertile, being well supplied with water from the high mountain ranges to the south and west.

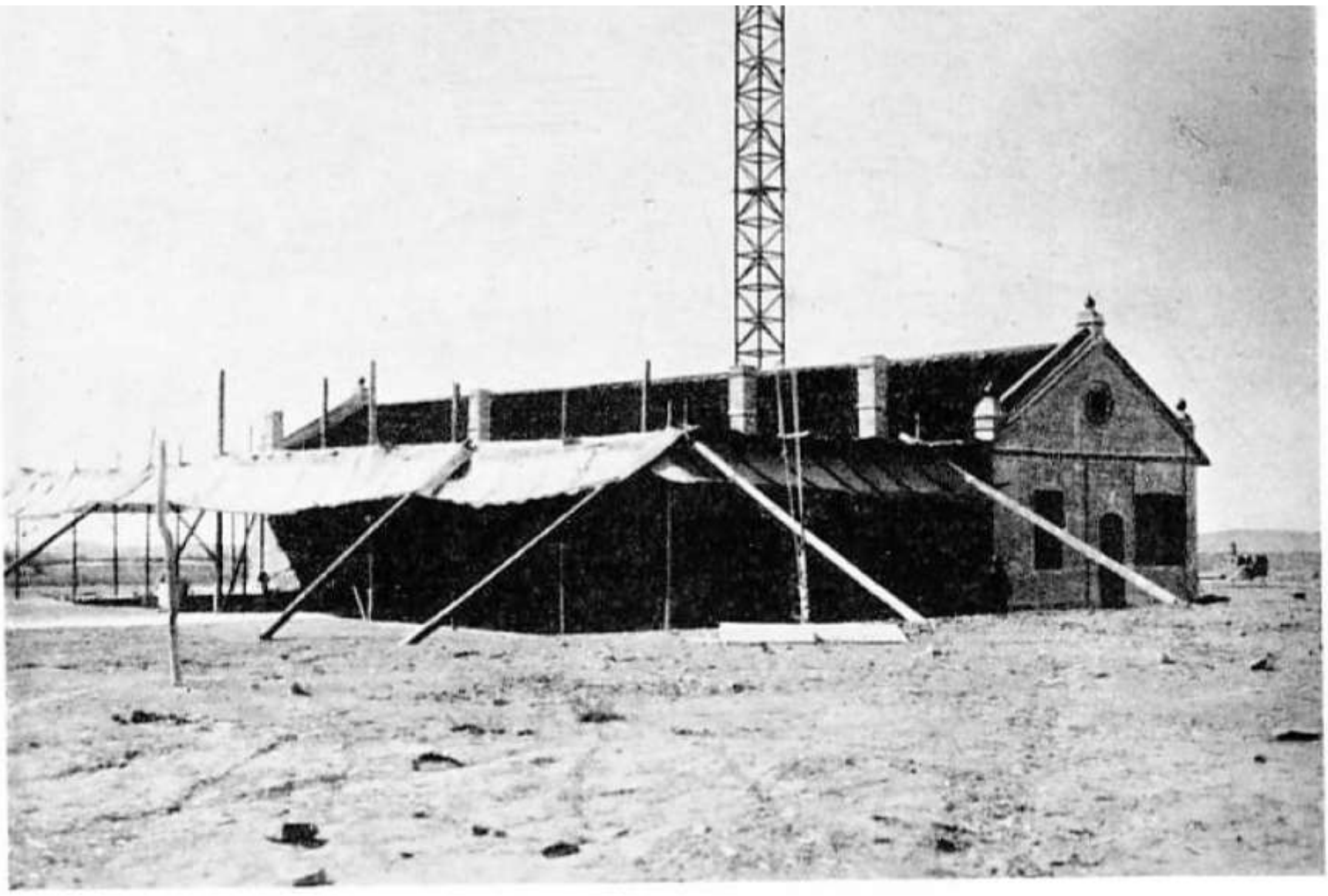
Besides the British Consul and his wife and the Vice-Consul there was a small colony of White Russians, exiles from the Revolution, who were professional and cultured people living in great distress.

One particular Russian was a famous geologist named Nazaroff, who finally escaped to East Africa and wrote a book called *Hunted*.

Mr. C. P. Skrine also wrote a delightful book with his wife, entitled, *Two Exiles in Central Asia*.

The faithful Chung with my best head, shot the first day out from Suchow

Ploughing through the dust below sea level at Turfan



The Power House showing the base of the centre tower

Life in Kashgar was very pleasant and full of interest with such a varied and cosmopolitan community, but there was always the "bogey" of Russia, which turned out to be only too real. Sinkiang Province became completely Russian soon afterwards, and is today playing an important part in the world situation, as it is on the borders of Tibet.

I decided to return to Peking by the quickest route possible, and accompanied by my two faithful Chinese servants I set off for India on 26 June 1923.

Our ponies were fit and we made very good progress. After crossing the Pamirs we came down into Kashmir through the native states of Hunza and Nagyr—a really delightful and picturesque journey. Crossing the Mintaka Pass, the Pass of the Thousand Ibex, we did not see a single ibex! (long horned sheep). It was bitterly cold and at one point we had climbed to an altitude of 15,000 feet.

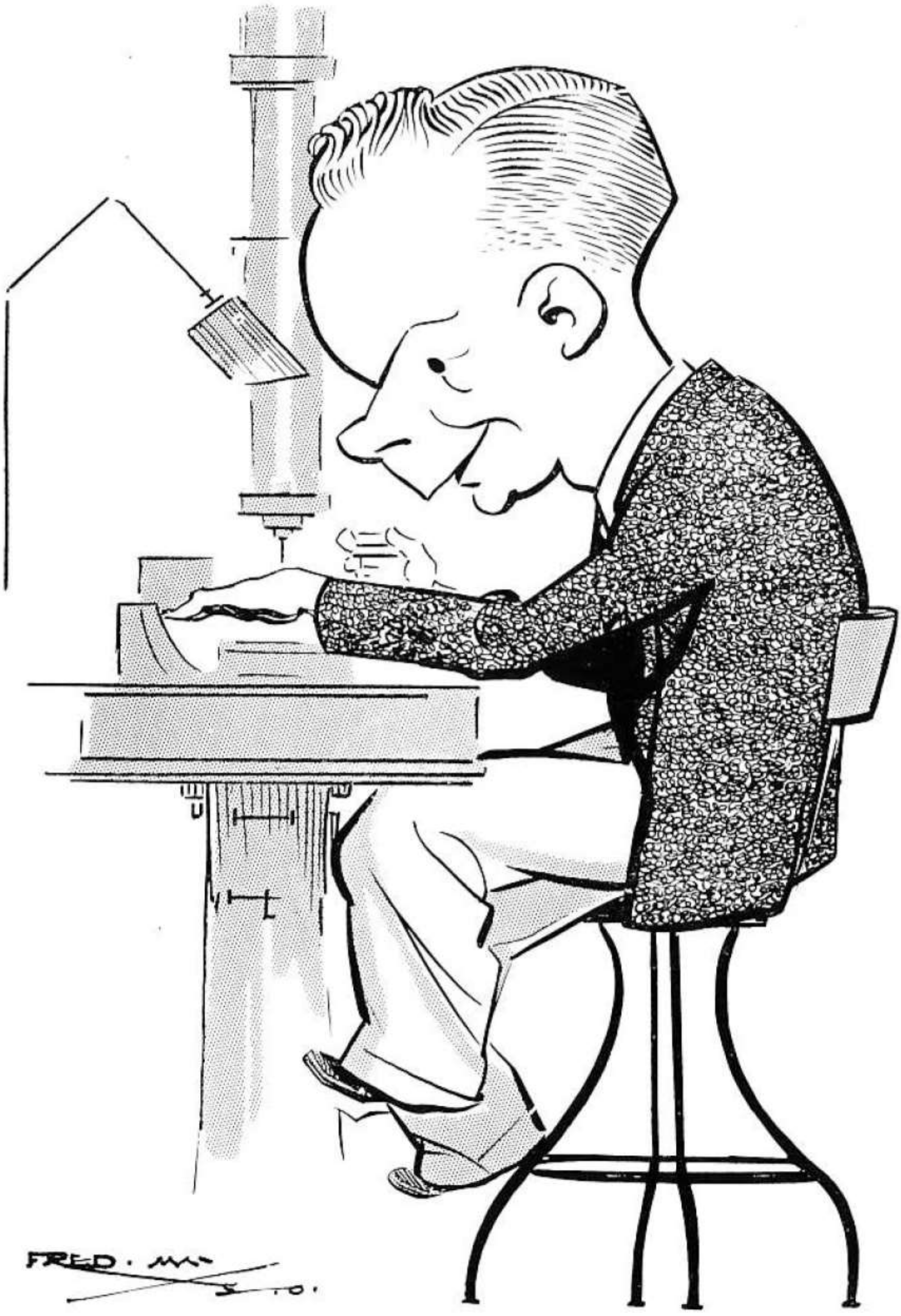
We reached Srinagar, the capital of Kashmir, on 2 August 1923, where I found myself back to comfort and luxury in Nedou's famous hotel.

Before being allowed to bring my two Chinese followers with me down the Gilgit Military Road, I had to obtain permission from the Indian Government.

From Srinagar we travelled by car to Rawalpindi where we joined the railway and went on to Calcutta. From there I took a B.I. ship to Shanghai and had the frightening experience of running into a typhoon just off Hong Kong.

On arrival at Shanghai I had to go into hospital with scurvy, developed throughout the long months of hardship.

I finally reached Peking just two years after starting on my journey to Urga.



Bill "Butch" Hill, engraver, has been with the firm at St. Albans ten years, interrupted by four years in the Services in Belgium, Holland, Germany, Egypt, and Palestine between 1943 and 1947. A "Z" man who has seen as much of the world as he can stand, Bill has now found himself an essential occupation—fretwork in the evenings

AROUND THE COMPANIES

AWARD TO MR. T. L. ECKERSLEY

Although it is over four years since T. L. Eckersley, B.A., B.Sc., M.I.E.E., F.I.R.E., F.R.S., retired through ill health, his name is still known throughout the Marconi Company and indeed throughout the world, for during his thirty years' association with the Company he achieved an international reputation as a leading authority on radio propagation. His eminence in this field was acknowledged in 1938 when he was elected a Fellow of the Royal Society, and now the seal has been set upon his life's work by the award of the Faraday Medal of the Institution of Electrical Engineers.

To many in the Marconi Company he is thought of as a mathematician with a rare genius for grasping the meaning of an equation without having to solve it in detail, and perhaps his greatest inspiration was the application of phase integral methods to the problem of diffraction round the curved earth. The honour that has been accorded to him is, however, equally a recognition of his greatness as a leader of a research team to whom he presented experiments in an almost embarrassing profusion.

To him apparatus is only a means to an end, and he has never allowed an interest in it for its own sake to distract him from the purpose in hand. Time spent on unnecessary refinements was time wasted and it did not matter if the apparatus fell to pieces after the experiment was over. Though these experiments were primarily concerned with increasing our understanding of the processes of radio wave propagation, they were usually also of profound practical importance, as for instance in the design of a direction-finder free from polarisation error and in the planning of short-wave long distance communications. As he himself so often likes to say, there is nothing so practical as a good theory.

In his retirement he is still able, with the help of his devoted wife, to publish papers from time to time in spite of considerable physical disabilities, and in congratulating him on the award of the Faraday Medal, we

T. L. Eckersley

feel sure that it must give him great pleasure to know that he is held in such high regard by his fellow scientists and engineers.

New Street

CHILDREN'S PARTIES

The second Saturday in January was a red letter day for five hundred of the younger generation. For this was Marconi Party Day for the older children. Their young brothers and sisters, the "under sevens", had theirs a fortnight later, and both were the sort of party that every child loves.

On the first occasion the children were greeted on arrival by J. P. Wykes, Works Manager, Mrs. Wykes being unfortunately laid up with 'flu. The delicious tea spread out provided a feast for eye as well as tummy, but with all those eager mouths to feed the scene soon resembled a deserted battlefield.

After tea the gaily festooned hall acquired an air of excitement and expectation as the entertainment began. This included an exhibition of children's dancing, a film show,

and a display of conjuring. This year's Father Christmas, admirably impersonated by T. Crees, had a fine sack of gifts and all the guests went home happily laden.

The second party was equally successful, with Punch and Judy, clowns, dancing bears, and little girl entertainers. A splendid tea was followed by singing and games, and Mickey Mouse and Donald Duck appeared on the film screen amid squeals of delight. Mr. and Mrs. Wykes acted as host and hostess, and helped the Committee to give the children a very happy and exciting afternoon.

It is over twenty-five years since the Marconi Companies began these parties for their employees' children. It gives Mrs. Sincock, our welfare officer, the greatest thrill to see today's children being brought to the party by parents who used to come themselves.

Perhaps one of the little girls who wrote a "thank you" letter this year echoed everyone's appreciation when she said: "When I went home I did not want to go."

Mrs. D. E. Sincock, our Welfare Supervisor, who organised the children's parties

GREEN FINGERS

Rival gardeners in and around the Tool Room are D. Bearman, E. Buckley, B. Cowell, E. Orchard, and C. Poulton. By this we don't mean that the Tool Room is the scene of frantic digging and planting, but merely that these five have at last arrived at the top of a housing list, and are turning their newly acquired plots into gardens. They have all been allocated aluminium bungalows in Beeches Road, near Waterhouse Lane.

Party spirit at the Shire Hall

Before his marriage Mr. Poulton used to help his father in their big garden at the "Cross Keys", Hatfield Peverel, and Mr. Bearman has had a good deal of hard training during his sojourn at Boreham Airfield. Mr. Buckley and Mr. Orchard, of Tool Designs, have every square foot of their respective gardens laid out, as might be expected, with the geometric precision of the drawing board. Billy Cowell, Tool Room Ratefixer, is busy computing how many square yards he can dig to the pint. Wait till he puts himself on piecework!

AN HONOUR FROM ICELAND

A Knighthood of the Order of the Falcon was recently bestowed upon our Commercial Manager, F. S. Mockford, by the President of Iceland. Mr. Mockford generously says that this high honour is a tribute to the excellence of our designs, the quality of our workmanship, and the standard of service we render to our customers.

NOT A GOOD MATCH

Geordie Blackwood, of Prototype Shop, has been getting tired of Sandy Bryant's eternal requests for a match. When Sandy asked for one the other day, all he got was: "Now look, Sandy, I've had enough of this—just because your name's Bryant don't run away with the idea that mine's May!"

SPARKLING NEWS

Arthur Beynon, engineer on the tug *May* during Marconi's early experiments at Lavernock Point, and now living in Cardiff, was "in the news" on 24 January for the best of reasons. He and his wife celebrated their diamond wedding that day, and we offer them our sincere congratulations.

S.S.A.F.A.

The Company has presented an extension loud speaker for the radiogram recently presented to the Soldiers', Sailors', and Airmen's Families' Association home for children in Vicarage Lane, Great Baddow. Here care is given to children whose parents are unable, through illness or emergency, to look after them for periods of longer than a month.

The play room in Springbok House, Great Baddow, in which the loud speaker has been installed

It is usual for this Company to lend the amplifying equipment for the annual summer garden party given by the Association to raise funds.

FILM SOCIETY

Five of the seven members of the Chelmsford and District Film Society's Committee are Marconi people. The Chairman is P. W. Jinkings and the Secretary G. A. Vickers, both of Transmitter Development Group. The other three are Miss G. H. Allen, Patents Department, Baddow, J. Baylis, Transmitter Group, and J. F. Rowley, Installations.

The Society was formed in 1947 by L. Prechner, who was also with the Company. Its aim is to promote appreciation of the cinema as an artistic medium, by showing films of outstanding merit and by arranging lectures and discussions. Films chosen are from many countries and represent both early and up-to-date technique. Recent examples include the two Italian films, *Four Steps in the Clouds* and *To Live in Peace*, the French *Monsieur Vincent*, and the memorable colour film of Admiral Byrd's 1947 Antarctic Expedition. To avoid competition with commercial cinemas, films are not released to private societies before the circulation is complete.

The Chelmsford Society uses a 16mm. projector as the film hire charges are less expensive than the 35mm. size, and although the films are not quite so up-to-date there is a wide range from which to compile good programmes.

DRAMATIC SOCIETY

IF YOU PASS the New Street Canteen any evening you will see that the Dramatic Society are once again hard at work.

They started rehearsing a one-act play, *Villa for Sale*, by Sacha Guitry, soon after Christmas, produced by Phil Berkeley, with a cast of five: Marjorie Cowell, Irene Dally, Catherine Hughes, Peggy Wade, and Jimmy Michael. This was performed in the British Drama League One-Act Festival at Maldon.

Now Edna Farr is producing *Rain on the Just*, a three-act play by Peter Watling, in which we shall again see Gladys Moore and, for the first time, Irene Dally, Joan Shipway, and Marjorie Taylor. Geoffrey Carr and Jim Gough are taking important parts and the cast includes Charles Cuthbert and George Kemp.

This is a very different type of play from *Little Lambs Eat Ivy*, the last production. It is topical and deals with the problems that many families have had to face in recent years.

The committee of the Hoffmann Social Club have very kindly lent their hall which is one of the best in Chelmsford and we hope to see it filled on the evenings of 6 and 7 April.

Great Baddow

BADDOW MADNESS

The correspondents responsible for collecting new items for this column are convinced that nothing ever happens at Baddow which may be termed news. Even our news stalwarts Norman Knight, Mervyn Morgan, and Michael Gough have let us down this month. It is said that if dog bites man it is not news, but if man bites dog that is indeed news; but none of our inhabitants seems willing to bite a dog.

While we are on the subject of biting, we are wondering where all the rabbits have gone which used to abound in our fields and we cannot help feeling that someone has invented a cunning gadget for enticing these animals to the stew pot. We remember the very effective electro-flycatcher which W. O. Agar once produced. Is he now guilty of electrabbiting?

We hear rumours now and then of the interest taken here in statistics. For example, as soon as the Baddow village fire hooter goes, out come numerous watches in the Drawing Office and grins of satisfaction spread over the faces of the observers when L. Jackson, a part-time Fireman, knocks another second off his time in getting to the main gate. It is claimed that in the past year he has reduced his time from forty-five to forty seconds. At this rate, in ten years time, he should, by the laws of probability, get to the fire before the hooter goes.

Statistics combined with nature-study is a hobby of K. W. Tremellen. A short time ago he studied the behaviour of a good sized spider which made its web on his office window; he was able to tell you that it took Lucy (that was his name for it) just twenty seconds to run along her web, disentangle a pellet of blotting paper and toss it out, but she took twenty-five seconds to capture a fly, bind it up and take it away to her parlour. Alas, poor Lucy caught the eye of the cleaners and out she went, but N. M. Rust came to the rescue and imported a real whopper named Louisa, all the way from Worthing. Louisa, in spite of her size, was no less agile than Lucy.

Some of our inhabitants are very inventive. For example, we have all heard of Bessel functions; well, K. L. H. Robinson has made one that won't. A. F. Boff and R. A. Sewell have thought of an ingenious idea for catching bears, but this magazine is no place in which to expound the theory of the method; we suggest that the author of the Polar Explorer's Handbook might be interested. Incidently, we don't think it would work.

W. H. Roper is rapidly becoming a specialist in miniaturisation. He can almost guarantee to get a six bottle receiver inside a matchbox. We fear that he is carrying it a bit too far because he himself is becoming infected with it and very often he just cannot be seen.

We have known for some time now that A. L. Oliver really likes water, but what we didn't know was that he likes it from a

bucket. No wonder he now goes down the field wearing a sou-wester.

All this nonsense adds up to one thing. Your correspondents want real news and only you can give it. Give us the story and we will finish the job.

LONG SERVICE

Congratulations to C. W. Willingham who has just completed forty years unbroken service with the Company. Mr. Willingham commenced work at Hall Street and has been attached to the Research Workshop for several years, where he is still going strong.

REUNION

W.R.N.S. and R.A.F. Personnel stationed at the Baddow Laboratories during the last war held a reunion on Sunday, 21 January, at Schmidt's Restaurant in London. Geoff Abbott was in the chair with twenty people present. Baddow civilians were represented by L. W. Whitaker and L. J. Prechner (now of the B.B.C.). Mr. Whitaker says that everybody was interested to hear about everybody else. The reunion was organised by Mr. and Mrs. R. Hayes ("Rich" and Vicky Mercer), aided and abetted by Lucien Prechner. It is hoped to make this reunion an annual affair.

EDGAR KARSTEN

Mr. and Mrs. L. H. Warner received a visit from Mrs. Karsten, wife of Edgar Karsten, who, it will be remembered, emigrated to Canada a few years ago from the Baddow D.O. Mrs. Karsten is over here for two months holiday and says that Edgar is doing extremely well as a representative of a large engineering concern. They now own their own house, run a large car, and eat large juicy steaks.

Marconi College

The teaching staff were invited to lunch at the Shanghai Restaurant, Soho, on Saturday, 20 January, by the Thai students of the College. We met the Thai Army Attaché, Colonel Amnuey Chaiyarojana, the Naval Attaché, Captain Swai Sribhadung, R.T.N., and his assistant, Lieutenant Commander Piti Tantives, R.T.N.

It was the first time we Britons had eaten in oriental fashion and the general conclusion was that it was easier than it looks.

Chinese chow and complementary comestibles chosen from centuple communal cauldrons after characteristic Chinese custom were carefully taken on chop-sticks. Mr. Burnett suffered the disadvantage that his were not "dead true", which was a serious setback, but he kept his ends up without complaint.

It really was a treat to have this richly prepared meal and it makes one realise how drab English cooking is in comparison.

Of the three Thai students who have completed the General Course at the College, Savad Pavanarit will be with us again on the next Radar Course, Satap Keyanon is joining a Naval Electrical Course in H.M.S. *Collingwood* and Prasit Vong Ruttoh hopes to join our next Radar Course but this depends on the Thai Army Authorities.

APPRENTICES

Those Marconi Apprentices who saw the Crompton Parkinson Apprentices' contribution to the Carnival last year may have been wondering what the Marconi Apprentice Association intend to do this year.

The committee has not been idle and invites entries for a competition for the best design of a tableau or float for either one or two lorries.

It has been announced by the organisers of the Carnival, the *Essex Chronicle*, that Liberty will be the theme this year, and our Apprentices would like to illustrate some of the many ramifications of the Marconi Company.

There is plenty of scope in the idea and there will be help from the Apprentice Training Centre in the building of the tableau and there is about £10 at their disposal to pay for it.

The committee do not ask entrants to labour in vain for they have doubled the prize of 10s. given anonymously for the best design.

Designs will be judged by a panel of three, including a representative of the committee, and should be sent to the Apprentice Association, c/o the Works Education Office, before 30 April.

Writtle

POT LUCK

A chimney in John Lockyer's house recently needed sweeping, and John decided to do it himself. Armed with the necessary paraphernalia he approached the offending flue and got to work. Things went well as the brush went aloft, but it wasn't very long before he was the centre of an ever-growing pile of soot, to say nothing of a thick layer all over the room. However, he plodded on

until he encountered what felt like the original Immovable Object, and then he gave it up and called to his wife for assistance. Together with a superhuman heave they got the rods under way again, but this time what came down was a large quantity of mortar. This final effort was accompanied by the sound of moving masonry, followed by a terrific crash and the breaking of tiles. Covered with confusion and soot, John and his wife shot outside to find that the chimney pot had vanished. It had fallen on to the roof and bounced on to a heap of sand, where it lay undamaged. The incident had been closely and joyfully watched by the usual posse of small boys, who no doubt hoped the performance would be repeated next year.

The rest of the week-end was spent in rebuilding the damaged stack and in re-fixing the pot, no easy task for a novice. John, however, has proved that as a chimney sweep he is an excellent bricklayer.

* * *

Miss Pamela Charlish, outside right of the Chelmsford Ladies' football team, has joined the Aircraft drawing office staff as an apprentice tracer.

The Chelmsford Ladies' Club is well supported, and Pamela scored both goals in the match against a London Ladies team this season, in which Chelmsford were just beaten 3—2.

APPOINTMENT

His many friends in the shipping world will be pleased to learn of the appointment of T. A. Simpson as Deputy General Manager, M.I.M.C.

Mr. Simpson joined the Marine Company as a member of the sea-going operating staff in 1913, and served in that capacity until 1917, when he was appointed to the instruction staff at Marconi House, London. He was later transferred to Southampton, and from there to Port Said where he remained until his return home in 1935.

In 1938 Mr. Simpson went to Bombay as Depot Manager, and back in England again in 1946 was appointed Assistant to the General Manager (Contracts), and then Contracts Manager (Deep Sea Section).

Mr. Simpson's office will be in Marconi House, Strand.

RETIREMENTS

After nearly fifty years continuous service in the Marconi Companies, Mr. A. H. Ginman, whom many will remember as General Manager of this Company in 1932, retired from the Presidency of the Canadian Marconi Company on 31 December 1950.

In 1901 Mr. Ginman joined the parent Company, and went to the United States. In 1908, as Officer-in-charge of the Siasconset station on the Atlantic coast, he was

A. H. Ginman

S. M. Finlayson

responsible for directing shipping to the scene of the collision between the vessels *Republic* and *Florida*, after receiving their distress calls.

From 1911 to 1917, at San Francisco, he brought into operation the first radio services linking the United States with the Hawaiian Islands and Japan. He was then appointed Special Representative of M.W.T. Company in the Far East, and for more than ten years worked in China and Japan and organised the company now known as Marconi (China) Limited, of which he became chairman.

His many friends will be glad to know that Mr. Ginman, as a Director of the Canadian Company, remains within the Marconi family with every prospect of establishing an all-time record of service. Distance and ill-health prevented his accepting the chairmanship of the Marconi Veterans' Association last year, but the Veterans like to regard this as a mere deferment.

Successor to the presidency is Mr. S. M. Finlayson, General Manager of the Company since 1945. Joining the Company as an apprentice engineer in 1919, his service already exceeds thirty years and his remarkable progress speaks for itself.

C. C. Caspard joined the Company in May 1913. From that year up to his retirement on 31 January 1951, his career as an installation engineer has taken him all over the world in the service of Marconi's. In World War I he was commissioned in the R.N.V.R. and did erection and maintenance work in South Africa, Egypt, and Gambia. After that war Mr. Caspard was sent by the Company to Chinese Turkestan, modifying and commissioning Poulsen Arc stations. A

C. C. Caspard

few years at home were followed by installation jobs in France, Santiago, Finland, Bulgaria, and Czechoslovakia. To Turkey in 1933, Warsaw in 1935 as the Chief Engineer in Marconi's Valve Factory, and then back to Turkey in 1938 to erect long and short wave stations at Ankara.

World War II meant return to the Middle East, where Mr. Caspard installed and commissioned transmitters for the Services, then out to Delhi for the erection of All India Radio's short wave beam station. The war over, between 1945 and 1947 he planned and erected the Army short wave beam station at Colombo, and his last erecting and commissioning job was the high power short wave beam station at Ankara, of which a photograph was published in the last issue of the magazine.

We hope to publish some of his reminiscences in "I Was There" later this year.

MARRIAGES

On 24 December, at Hackbridge, between Mr. H. T. Dean and Miss B. Evans. The bride wore burgundy with blue accessories, and was given away by her brother. Her friends at Hackbridge Works gave a case of fish knives and forks.

Mr. and Mrs. H. T. Dean
By courtesy of Phox Studio, Mitcham

On 6 January 1951, at Southend-on-Sea, between Mr. W. H. Key and Miss Kathleen Leach. Mr. Key is a member of the Test Division, and his friends there have presented him with a cheque. Best man at the wedding was N. E. Stahl, a former colleague in Test Division.

Mr. and Mrs. W. H. Key

On 20 January 1951, between Mr. Eric Mathams and Miss J. Lightfoot. Friends in Prototype Department gave a tea service.

On 23 December, at Sutton, between Mr. G. W. Wood and Miss B. S. Taylor. The bride wore white and carried carnations. An eight-day clock was presented by friends at Hackbridge.

BIRTHS

Congratulations this month to:

Mr. and Mrs. Kenneth Cufflin on the birth of their son, Alan Peter, on 12 January. Mr. Cufflin was in the Cashier's Department at New Street for thirteen years before transferring to E.E.V. Co., and Mrs. Margaret Cufflin was a member of the Writtle Staff. The two grandfathers have also seen long service with the Marconi Companies ; Mrs. Cufflin's father is Mr. R. G. Davies, a member of the M.I.M.C.'s sea-going staff for over twenty years, and Mr. H. M. Cufflin has been with the Wireless Company for over thirty years.

Mr. and Mrs. L. A. Halls on the birth of their son, David John, on 25 January. Mr.

Halls is a member of Technical Information Division.

Mr. and Mrs. Bernard Howe on the birth of their son, Michael Charles, on 22 January 1951. Mr. Howe is a member of the Tool Room.

Mr. and Mrs. A. Stripe on the birth of their daughter, Ann, on 26 January. Mr. Stripe is a member of Receiver Test.

Mr. and Mrs. R. V. Thorndick on the birth of their son, Philip Richard, on 20 December. Mr. Thorndick is a member of the Aeronautical Division at Writtle.

ILLNESS

Good reports on three of the sick list this month:

Stan Lancaster is well on the road to recovery after his recent operation for appendicitis.

Charles Lovegrove, who fractured a bone in his foot and had been away for everal weeks, is well enough for light duties.

S. D. Copper, Charge Hand of Maintenance Section, is making good progress and hopes to be back soon.

OBITUARY

We announce with regret the following deaths:

Mr. Bob Moores, at his home, "The Prince of Orange", Chelmsford, after many months of illness.

Mrs. G. E. Soley, on 10 January. Mrs. Soley was a cleaner at Baddow for many years; she was a widow and leaves two sons.

Mr. A. Lay, B.Sc., M.Inst.E., A.M.I.E.E., F.Inst.P., on 3 February, at the age of 58.

Mr. Lay was well known for his work in medical physics and electronic instrumentation, research, design, and development, and his reputation for work in electro-metering was world-wide. He spent twenty years with the Wireless Company working in the field of diathermy, and many of his designs are used by Marconi Instruments Ltd. He left the Company in 1948 to open his own laboratory at Galleywood to continue his research.

Fifty Years Ago

Northern Daily Telegraph, 16 *March* 1901

WIRELESS WIRES FROM ABOVE.

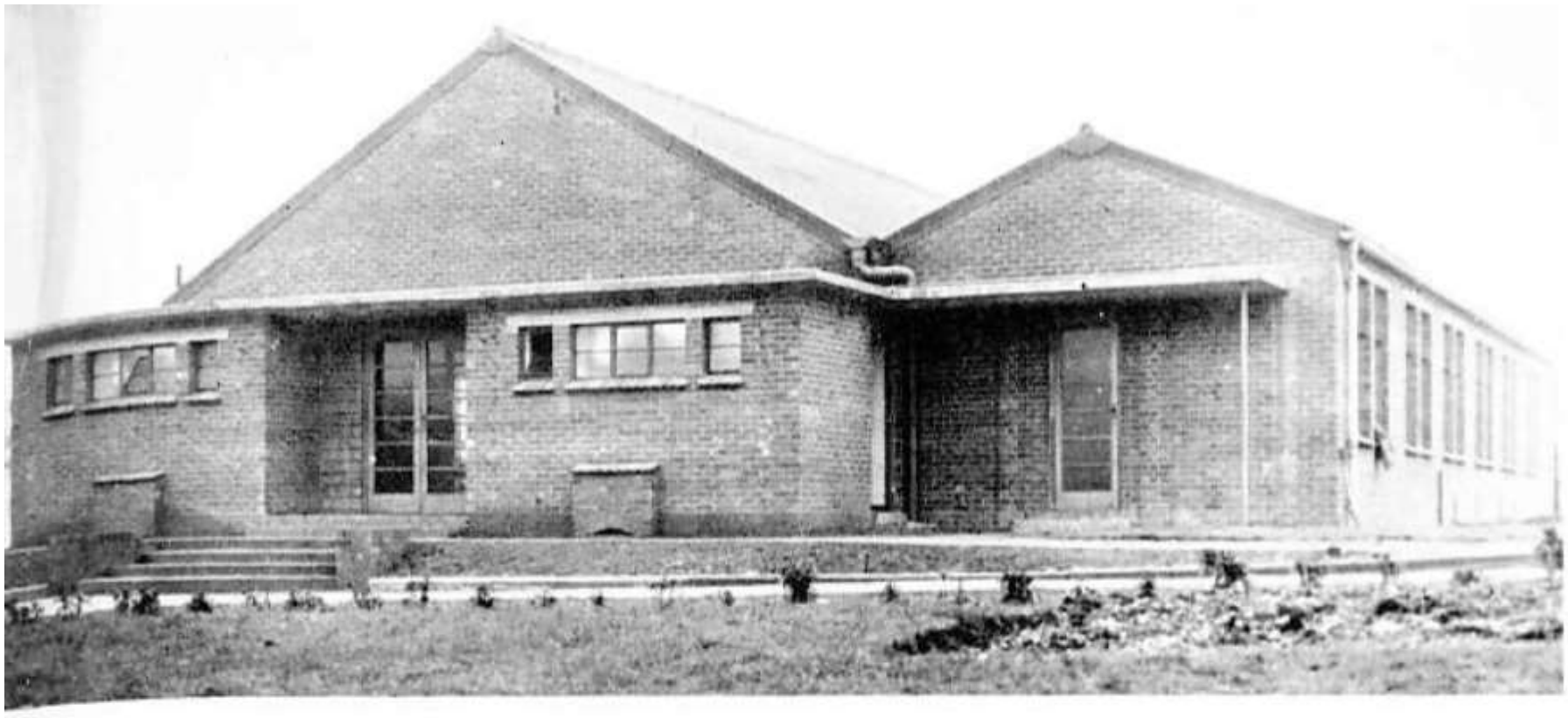
A new development is recorded in Marconi's system of wireless telegraphy. On a recent balloon ascent Lieutenant Hahn, of the Army Ballooning Department, took up with him an apparatus such as is employed in receiving messages by Marconi's system. He had previously arranged with a colleague that the latter should at certain definite times despatch messages from Berlin by means of an apparatus for generating electric waves. Punctually at the time agreed upon the More apparatus in the balloon began to click and automatically to record the signals which were found afterwards to tally exactly with those sent from Berlin. The distance between Berlin where the signals were despatch and the balloon where they were received was 28 miles. Although in this case the correspondence was one-sided, it is believed that in the near future the balloonist will easily be enabled to communicate with the earth by means of wireless telegraphy.

Marconi Instruments News

OPENING THE NEW CANTEEN

Wishing the employees "happiness, prosperity, and a good appetite", Mrs. H. G. Nelson, wife of the Deputy Managing Director of The English Electric Company, cut the ribbon across the doors of the new M.I. canteen at the opening ceremony, Monday, 5 February.

This modern and attractive building directly facing the factory is fitted with a polished timber-block floor, barrel ceiling with inset lighting, french windows the length of the south wall, and every modern con. A welcome extension of factory facilities, the canteen caters for more than 300 people in the main dining hall and a further twenty in the visitors' room. Much of the kitchen equipment, including ovens, refrigerators and fish fryer, is a product of The English Electric Company. Meals are served, as before, from trolleys by canteen



The new Marconi Instruments canteen

staff while teas and snacks for morning break are available from the long serving counter which, with its roller blind, still further enhances the streamlined interior. Altogether, even when the canteen is full for mid-day luncheon, there is an impression of comfortable space and airiness. Mr. Mayger's maintenance and Mrs. Wells's canteen staffs deserve thanks for working so hard on installation and generally "putting the house in order" in time for the opening.

A Word from the Deputy Managing Director

After being welcomed and introduced by Mr. J. M. Furnival, Mr. H. G. Nelson, in a short speech, emphasised the importance of the occasion since the canteen was not only much needed, but its completion marked a further satisfying stage in the planned extension of the Company's manufacturing facilities. The Management's aim to increase

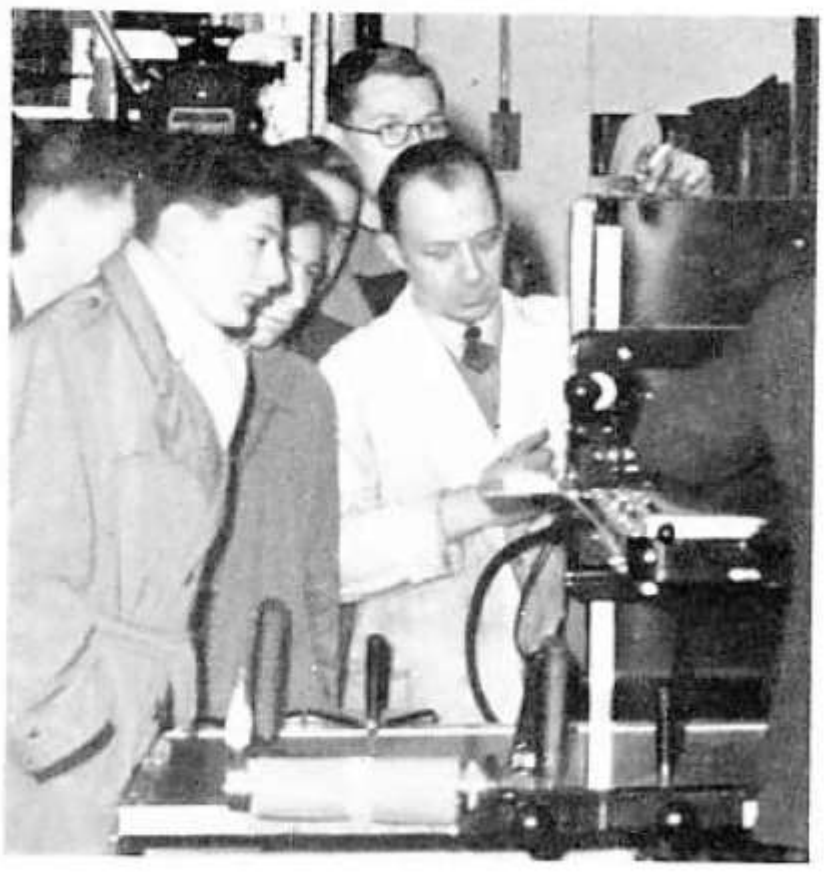
J. M. Furnival, Mrs. Furnival, Mrs. Nelson, H. G. Nelson, F. J. Taylor, and E. Garthwaite in the Conference Room exhibition during their tour of the Longacres factory

the scope of the factory and at the same time provide the best working conditions has been satisfactorily achieved over the past five years since the project was inaugurated. The Longacres factory now has the facilities and the will to go ahead with its big programme to meet increasing civilian and defence demands; a programme arising from the value and prestige of the instruments manufactured by the firm. Mr. Nelson concluded by congratulating Mr. F. J. Taylor, the Company architect, and Messrs. C. Miskin and Sons, the St. Albans builders, on satisfying so completely the requirements of the factory.

M.W.T. APPRENTICES AT ST. ALBANS

Arriving in fog, Tuesday, 30 January, twenty-five M.W.T. Apprentices set about "doing" the sights at Longacres. Thawing out with a hot cup of tea followed by an even hotter two-course luncheon the party broke into several groups, each headed by an M.I. guide. Although familiar with instrument production at Chelmsford they were, nevertheless, interested in the various stages of manufacture characteristic of the M.I. range. They were impressed, as most visitors are, by the fact that such a wide variety of electronic instruments are made in every detail within the walls of one compact factory.

Bill Worth demonstrates the X-ray Tilting Table and tube stand to M.W.T. Apprentices



100 CANDLEPOWER

Ron Manton of Accounts recently attended his grandmother's 100th birthday. Mrs. E. Manton, who lives at Bournemouth, celebrated the occasion with her children, grandchildren, and great-grandchildren.

MERRI AND JOLLI

Resolution moved by Mr. Jollife, member of London University, at the St. Albans Debating Society (26 January 1951) was that private enterprise is anti-social. He was opposed by our own David Merridale who suggested that state monopoly (we thought that was a card game!) was more susceptible to abuse. Private enterprise won by seventeen votes to six; Mr. Jollife was probably unaware of the fact that the St. Albans Debating Society meets in a building endowed by that giant of private enterprise, the Carnegie Trust.

OLD FAITHFUL

As motor cars can develop an almost human cussedness, so also can they become attached, with animal devotion, to a place or person. Take JH 5251, a blue Hillman Minx of 1933 vintage, which became a member of the firm during the war, carrying F. G. Cook (now of M.W.T.) to and from Head Office. Although the car was sold, regretfully, in 1948, it found its way back to the factory at Longacres, driven this time by H. Sellers, Sales Superintendent. In early 1950 JH 5251 was "sold again" but with a sentimental persistence it turned up once more in the care of its new owner, C. F. Brockelsby, Company physicist. Besides paying tax and insurance for the car perhaps it would now be appropriate to include it in the superannuation scheme?

COMING THE ACID

But the Plating Shop is so bracing! protests A. L. Seaman, foreman, when visitors make brief excuse and withdraw. Mr. Seaman will explain that the system of ventilation is of the greatest efficiency while most

of the acids and other chemicals which give rise to the "vapours" do, in fact, tend to cancel each other out so far as any injurious effect on the health is concerned. Certainly, if appearances are anything to judge by, the Plating foreman has thrived on his thirty-five years in the business (although he denies taking a chrome bath every morning winter and summer alike).

ELECTRONIC MEASUREMENT AWARD

John Sayers, who gained his practical experience in the Service Department, has recently been the recipient of a British Institution of Radio Engineers award for a paper on electronic measurement which gained highest marks for the year. A hard worker, John obtained his final C. and G. certificate in Telecommunications Engineering and succeeded in the Brit. I.R.E. Graduateship examination in 1949. He served in R.E.M.E. from 1943 to 1947, his first appointment in industry was with M.I., and he now works in the X-ray Laboratory of the Department of Applied Physics at the Northampton Polytechnic.

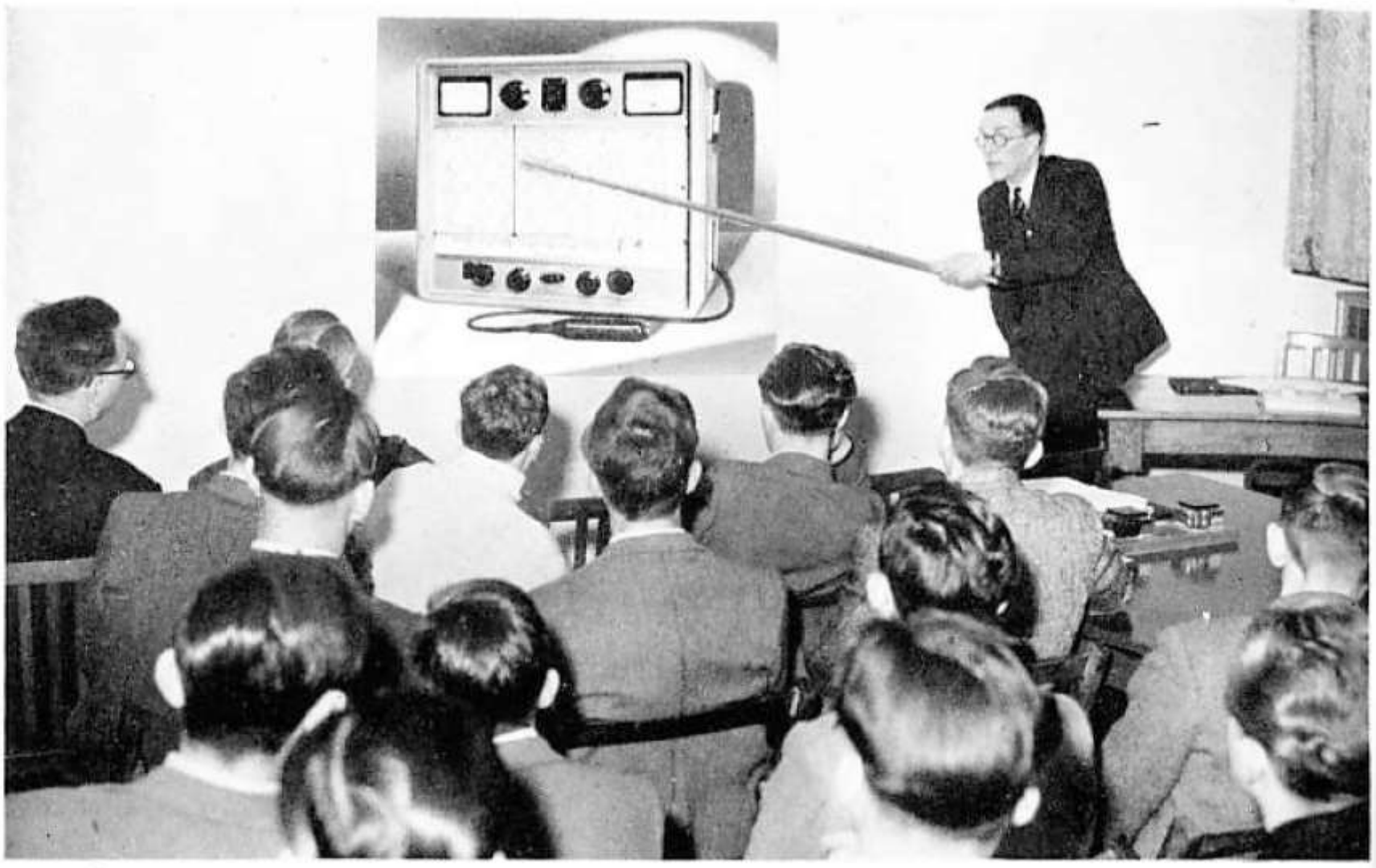
FLY AWAY ROY

Man with high ideas is Roy Cullington, of Assembly, who takes the air every week-end in a De Havilland Chipmunk. Expensive? Not a bit if you happen to belong to Number One Reserve Flying School of the R.A.F. out at Panshanger 'drome. In fact, they pay you for it! And as for the danger involved, it just does not mean a thing to Roy, who flew a combat Hurricane during the war. Another M.I. member who does the "cloud lark" is Sandy Wilson, of X-ray Inspection, also an ex-wartime pilot.

OPPORTUNITY KNOCKS

In a lecture to Marconi apprentices at the Longacres factory on Tuesday, 16 January, Sir Ronald Nesbitt Hawes, chief of administration, education department of The English Electric Company, outlined the tremendous opportunities existing within the group. Illustrating his talk with lantern slides Sir Ronald demonstrated that whether their interest was in jet aircraft, diesel-electric locomotives, washing machines, internal combustion engines, television, X-ray appa-

Doug Camp, ex-schoolmaster, comes into his own explaining a sub-assembly operation to M.W.T. Apprentices, while Betty Maxwell presses on regardless



Sir Ronald Nesbitt Hawes lecturing to M.I. apprentices

ratus, electronic instruments or, in fact, any branch of engineering, apprentices could build their career with the English Electric group.

In describing the historical background of the company interesting reference was made to the birth of the oldest group member, D. Napier and Son, whose founder, David Napier, came from Scotland to London in 1808 to exploit the iron printing machine. From this small beginning came such achievements as the aircraft engines which on two occasions won the Schneider Trophy and the engine designed for John Cobb, who still holds the land speed record. The English Electric Company are responsible for the country's first jet bomber, the "Canberra", and the apprentices learned also that the G.P.O. underground railway which links the main London postal offices is an "all English Electric" service.

In indicating the wide scope of the group activities Sir Ronald Nesbitt Hawes stressed the importance of the equipment for communications, industry, and medicine which the apprentices themselves were helping to manufacture in the compact and attractive factory here in St. Albans.

HELLO CHELMSFORD!

Members of the Assembly Department send greetings to those apprentices at Chelmsford who worked for a time at the Longacres factory. How is Gordon Parkhurst getting on, Dorothy wonders, while Bill is still debating whether there is such a thing as loaded dice.

THIS REALLY HERTZ

A letter from Montreal was addressed to Marconi Instruments Ltd., St. Albans, Hertz, Electra House, London, W.C.2. A gentle reminder, perhaps, that Heinrich Hertz was the scientist who proved Clerk Maxwell's theory of the existence of radio waves before Marconi realised the enormous potentialities of the phenomenon.

THE GARAGE THAT WANTED TO FLY

The trouble was, of course, that it looked like an aircraft. The framework was formed from featherweight aluminium struts which gleamed in the sunlight at the end of the runway—sorry, car-park. It stood there for

several days, incomplete, while the maintenance staff was preoccupied with the new canteen and to make it worse all day long aircraft from De Havilland's and the Handley Page 'dromes zoomed low overhead—most unsettling. Having no suspicion that it was, eventually, to fulfil the mundane and earthbound task of sheltering two Company cars, it was obviously furious when somebody with no knowledge of aerodynamics clamped a heavy, corrugated iron sheet on its fuselage, for, a few days later, with a fine gesture of defiance the entire assembly took off into the wind.

Flying conditions, however, were not good. With a gale blowing, drenching rain, low cloud, visibility zero and solo flying experience nil, the would-be dirigible did not stand half a chance. Whether it crashed at take-off or landing is not certain for it happened at dead of night. The wreck was discovered some yards from its original site, battered, roofless, but triumphant; no matter how solidly it may be anchored to the ground in future it has realised its ambition and known one wonderful, airborne moment.

BOOKED

Mrs. Joyce Rickard, company librarian for the past three years, left the firm on Friday, 2 February, to devote her time to housewifely duties. Associate Member of the Library Association, Joyce worked in the St. Albans City Library before joining M.I.

Personalities

NUMBER EIGHT

FRED KING

Chauffeur

Going from horses to horseless carriages Fred King, who started life as groom for Colonel Hubert Berkeley, was among the first three people to hold a driving licence in St. Albans in 1910. A member of the T.A. before the first world war, he joined the army and later transferred to the Royal Flying Corp, where he ranked as Air Mechanic, 1st Class. Back in civvy street he worked in the taxi and private hire business for two years before becoming chauffeur to the manager of Heath and Heather Ltd., the herb specialists—a job he held for seven-

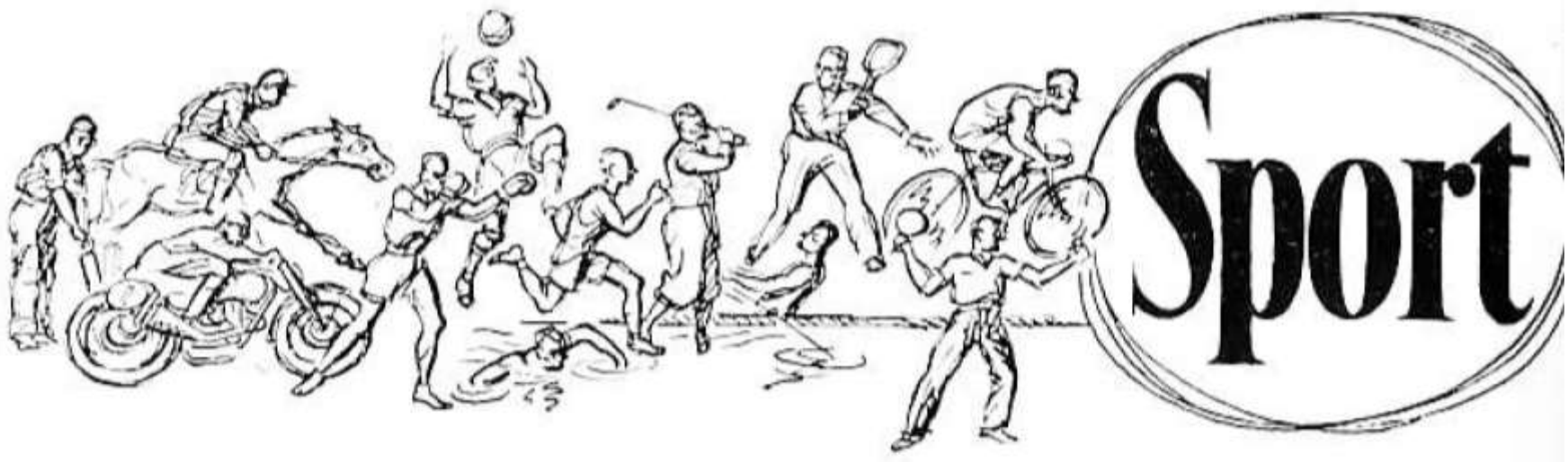
Fred King

teen years, driving to all parts of the British Isles in the process. When M.I. took over the Heath and Heather factory in 1940 Fred was one of the "herbs" they left behind.

Now, as chauffeur to the General Manager, and responsible for the safe transport of v.i.p.'s, Fred is noted for the pride he takes in keeping his cars in immaculate condition. Indeed, on the most bleak and grey morning—yes, even a Monday—Fred and his car both have a warm sparkle to cheer the most jaded heart. It is not difficult to imagine him, in grey topper, driving a four-in-hand out of the pages of the *Pickwick Papers*.

LONGACRES BARBECUE

A miracle of collaboration between canteen staff, maintenance, and the S. and S. Club resulted in the first dance in the new canteen on Saturday 17 February being a roaring success. The four-piece band provided music which kept most of the 260 dancers on the floor all evening. The event was the happy termination of Open Day; an occasion giving employees and their families a chance to sample the canteen, watch work in progress and see exactly "where Dad works" (photographs next month).



Marconi Athletic and Social Club

FOOTBALL

GORDON PARKHURST plays football though he does not play a saxophone as far as we know, so leaving the music to the West End Players he devoted his skill to mastering the ceremonies at the Football Section dance at the Odeon on Friday, 2 February. Gordon kept everyone, members, wives, and girl friends, on their toes and even turned his back when he put them on the spot.

But, after all these frivolities, it was, no doubt, the weather which affected the results of the matches next day, for Saturday, 3 February, was really rough. The First XI played the King's Road Old Boys and were soundly beaten 7—1. The Second XI playing at Melbourne Park fought hard and scored three goals against Park Rangers. Dick Cave played a magnificent game in goal and made it seem almost impossible

Don Parkhurst making a brilliant save for the 2nd XI against Sadd's Athletic in the Chelmsford and Mid-Essex League Cup. John Fagg and Arthur Pitches are second and third from left

for the Rangers to score but they at length got one past him into the net. By the end of the game the ground had become a sea of mud and Dick was plastered from head to foot

The Third XI faced the onslaught of Marks Tey and found the handicap of one man short too much for them. They lost 8—1.

The final dance of the Section will be held at the Odeon Ballroom on Friday 6 April. It is advisable to apply early for tickets.

HOCKEY

ON SATURDAY, 13 January, Marconi's beat Braintree Youth Club 6—1.

This match was more even than the score suggests. In the first half the Youth Club had most of the game, scoring after the first ten minutes. The Marconi side gradually took control and before half time Bill Agar equalised the score.

In the second half the Works side really got going and during a succession of attacks Bedwell scored a hat-trick and this was followed by two more goals from Addlington and Agar.

The Youth Club side never gave up trying and their centre half played a particularly fine game.

We played Little Baddow on Saturday, 27 January, and lost 2—4.

The pitch was too rough for accurate play but nevertheless both sides expended a great deal of enthusiasm and energy. In the first half Little Baddow scored after a scramble where the Marconi goalkeeper got stuck in the mud. In the second half Smythe scored and Little Baddow scored again almost immediately. Following a tense struggle Bedwell equalised with a good shot over the goalkeeper's head. Soon after this, Bewter was hit in the face by a hard, rising shot, and had to leave the field for the rest of the game. Little Baddow went ahead, scored two more goals and won a good game.

Marconi's beat Cromptons 3—0 on 3 February on the Waterhouse Lane Sports Field in atrocious weather—teeming rain and mud ankle deep round the goals. But despite all Marconi's were able to redeem their earlier defeat on the Crompton ground. Our wing forwards, Clough on the left and Agar on the right, played excellently and centred well.

The first goal was scored by Clough following a centre by Agar. Smythe scored the second goal at the finish of a goalmouth scramble when everybody was trying to dig out the ball which was stuck in the mud. It was a fine pass from Clough to Smythe that gave Smythe the opportunity to score the third goal. Cromptons attacked hard, their right winger playing a very fine game, but the Marconi defence held firm and Ray Cox in goal played particularly well in trying circumstances.

ANGLING

ON SATURDAY, 13 January, twenty-nine members paid a second visit to Southwold. Fishing started at 8.30 a.m. and the competition ended at lunch-time. The winners were: 1st A. G. Bignell, 2nd H. Cole, 3rd E. Biglin.

The competition was restricted to one rod and three hooks, but for the remainder of the day fishing with two rods was permissible. The day was dry but windy, with quite a lot of sunshine, but results were not so good as on our previous visit.

On Sunday, 21 January, the "Admiral Grant Memorial Cup" competition was held, about a dozen members taking part. A. G. Bignell won this, with W. R. Huggett second. Bignell's catch was a good perch of $11\frac{3}{4}$ oz.—just four drachms short of Specimen Fish requirements.

With one more Points Competition result (the "Howe Trophy") to come, the League position is as follows:

W. R. Huggett $23\frac{1}{2}$, A. G. Bignell $17\frac{1}{2}$, F. Taylor 14, and W. Clements 9. The first prize for this competition will be the Cup and a rod (the latter kindly presented by G. Watling), the second prize a tackle voucher to the value of £1 10s., and the third a tackle voucher for £1. Members of the committee have subscribed to the vouchers and the prizes will be presented, with all the other cups of the season, at the Annual General Meeting, the date of which will be published in the next issue of the magazine.

TENNIS

THE ANNUAL GENERAL MEETING of the Marconi Tennis Section was held in the Men's Club Room, Friday, 26 January. R.

Marshall (Progress) was again elected chairman, R. Soden (Maintenance) captain and Miss I. Miller (Television) vice-captain. Mrs. B. Cass (Progress) succeeds Miss J. Bees as treasurer, and J. Robinson (Progress) follows Miss P. Payne as hon. secretary.

Miss Payne was secretary from 1943 to 1950, and won the Ladies' Singles in 1945 and 1946. For two seasons she was one of the pair which won the Mixed Doubles Challenge Cup, partnered by A. T. Holloway in 1947 and E. Hawkins in 1948. The Cup was presented to the Tennis Section in 1946 by the late Admiral Grant.

BILLIARDS AND SNOOKER

THE LEAGUE CHAMPIONSHIP has gone ahead and the points are as follows: (Snooker, Billiards, and total respectively): Progress and Jobbing, 21, 16, 37; Instrument Shop No. 1, 15, 21, 36; Process Planning, 15, 19, 34; Waterhouse Lane, 11, 22, 33; Stores Division No. 1, 14, 17, 31.

The much discussed match between Instrument Shop No. 1 and Stores Division No. 1 scheduled to be played on 1 February, did not take place owing to illness on both sides.

In the Pretyman Cup Competition the Company have played four games this month as follows: v. Estric, won 5—1, 3—0 snooker, 2—1 billiards; v. Crittalls, drewn 3—3, 2—1 snooker, 1—2 billiards; v. Hoffmann's, lost 4—2, 2—1 snooker, 0—3 billiards; v. Estric (return game) won 5—1, 2—1 snooker, 3—0 billiards.

The most notable performance in these games has been that of Frank Gresty who has won his four games this month.

TABLE TENNIS

THE CHELMSFORD and District Table Tennis League held their individual championships at Christy's Sports Club on Saturday, 27 January.

The highlight from our view was that Charlie Wheeler won the Men's Singles Championship for the third successive year, beating in the final another Marconi player, Tom Mayer.

Charlie, partnered by Derek Tiffin, beat Denny Male and Lu Pavitt, also of Marconi's, and won the Men's Doubles championship for the second year.

The Men's Veterans Singles, open to players of over forty years, was again won by Ted Mackey, who beat Dan Pedder, also of the Company.

Scores

Men's Singles: C. Wheeler, 22—20, 21—7, 21—13.

Men's Doubles: C. Wheeler and D. Tiffin, 21—16, 22—20, 16—21, 21—17.

Men's Veterans Singles: E. Mackey, 6—21, 21—16, 22—20.

DARTS

OUR VISIONS of "Wembley" and the "People's" Cup faded when we met the "Cherry Tree" at our Club rooms on 29 January 1951. The games in this fourth round of the Cup were fast and furious, the opposition was in grand form and, although our team played exceptionally well, the result was two straight games in the "Cherry Tree's" favour.

There is satisfaction to be gained from the fact that we have gone further in the cup this year than any previous year. Simpson, Windley, Wallis, Hawkes, Gower, Sleet, Buddle, and Taylor were a fine team and their play did credit to the M.A.S.C. Darts Section.

Better luck next season!

CRICKET

IN SPITE of the cold at the time of writing, the 1951 season will soon be on us, and the First, Second, and Sunday XI fixtures are now almost complete.

Arrangements are being made for Third XI fixtures. We shall need more members for this team which will play from mid-May to mid-July. Will anyone interested please apply to R. E. Doubleday, hon. secretary, Room 425, Marconi House.

CHESS

THIS IS the first time the word "chess" has been breathed in the Sport section of the magazine, and more will be heard of this fascinating game. We have two teams entered in the Postal Chess League, Marconi I

in the First Division and Marconi II in the Second Division, and play has begun. A meeting will shortly be arranged to consider the revival of the Chess Section for over-the-board play.

ANNUAL SUMMER OUTING

We are giving some early details of this year's outing for employees and their friends, as arrangements have to be made some time ahead. The date—8 September—is now firm, and it is proposed to visit Portsmouth and Southsea. The fare will be 22s. 6d. (children under fourteen half fare), with 5s. for lunch and the same for dinner. A specially conducted tour of the Harbour and a cruise to the Isle of Wight are being arranged. Full details will be posted on the notice boards later; the charge is likely to be 5s. 6d. including tea. It may also be possible, subject to Service conditions, to visit a battleship or submarine.

Forms of application to join the outing can be obtained from A. J. Impey, General Secretary, M.A.S.C., Room 783, Marconi House, and weekly payments can be arranged in the usual way.

St. Albans Social and Sports Club

NEW COMMITTEE MEMBER

With the departure of a S. and S. Club committee member representing the Stores, Winding, Progress, Planning, and Purchasing department, a ballot was held with the following results: A. Scott 31, S. Clark 11, R. Law 6.

A. Scott was therefore elected to represent the above sections.

LIONS AND ELEPHANTS

A party of club members enjoyed an evening at Tom Arnold's Circus, Harringay Arena, Saturday, 3 February. The performance was hundred per cent but magazine cameras were *verboten*.

NETBALL

Playing Ballito N.C. at Fleetville Schools, 13 January, M.I. won 15—8. On 27 January, on the same field against the Pioneer Youth Club, we lost a hard-fought game 7—6.

The Marconi bowls team, winners of the Writtle Hospital Cup, 1950. Left to right: W. Rice, W. Woodward, P. Orrin, P. Howlett (skip). The Bowls Section has already started to arrange its fixtures for the 1951 season.

FOOTBALL

In the last minute of a tough game against Radlett, 13 January, Carl Jameson scored the only goal of the match to give us our first victory of the season. Tony Going played his first game in goal and emerged with flying colours.

On 20 January we paid our first visit to Murphy Radio's new ground in Stanborough Lane and beat them 5—1. Fred Smith got another hat-trick and Eddie Higgs and Arthur Hodgson got the others.

On 27 January we entertained Kimpton Rovers at Verulamium and lost 4—2. After an even first half, Kimpton scored three goals in ten minutes to swing the game in their favour, and although we were out of luck in the Kimpton goal area, the result was a fair reflection of the ability of the forwards to make good use of chances received.

We paid our first-ever visit to Shenley on Saturday, 3 February, and were treated to the roughest and muddiest game of "football" this season. Midway through the second half fog descended and blacked out ground and players, and when it lifted suddenly about ten minutes later, Marconi's were losing 3—1. Fred Smith and Eddie Higgs made the scores even, and Fred added another one minute from time, but it was disallowed. Wally Wingad saved a penalty and we were satisfied in the end with a draw. Scorers: F. Smith 2, E. Higgs 1.

Marconi Veterans' Reunion

THE FIFTEENTH REUNION, luncheon, and annual general meeting will take place on Saturday, 5 May 1951, at Caxton Hall, Westminster, London, S.W.1. Reunion 12 noon, luncheon 1 p.m., followed by annual general meeting and tea.

The chairman will be H. E. Watterson (1902), and W. I. McGhee (1904) will be deputy chairman.

The price of the luncheon ticket will be 17s. 6d., the balance of the expense being met by voluntary contributions. Wine will be a charge against the General Fund. When applying for tickets, which are now available from the Hon. Treasurer (W. T. Kipling, Room 240, Marconi House, Chelmsford, Essex) it will be greatly appreciated if Veterans will add to the 17s. 6d. any amount that they feel able to contribute to the General Fund.

* * *

COMPETITION FOR AMATEUR PHOTOGRAPHERS

ALL THOSE in the Companies who know and love the countryside of Essex and Hertfordshire will be glad to know that we have chosen this subject for our next series of frontispiece photographs, and we now invite all amateur photographers in the Wireless Company and Marconi Instruments to send in prints suitable for enlargement, one of which will be selected each month and paid for at the rate of £1. 1s.

Entries should be sent to the Editor, *The Marconi Companies and Their People*, Publicity Department, Marconi House, Chelmsford, and publication will begin when a sufficient number of good prints have been received. We are sorry we shall not be able to return prints to competitors.

ANSWERS TO PUZZLES

FEBRUARY ISSUE

Garrison puzzle: 500 men and 133 guns.

Eight gallon cask: This is set out in stages (a), (b), (c), etc., each stage representing one pouring.

	8-*gall. cask*	5-*gall. cask*	3-*gall. cask*
(a)	8	0	0
(b)	3	5	0
(c)	3	2	3
(d)	6	2	0
(e)	6	0	2
(f)	1	5	2
(g)	1	4	3
(h)	4	4	0

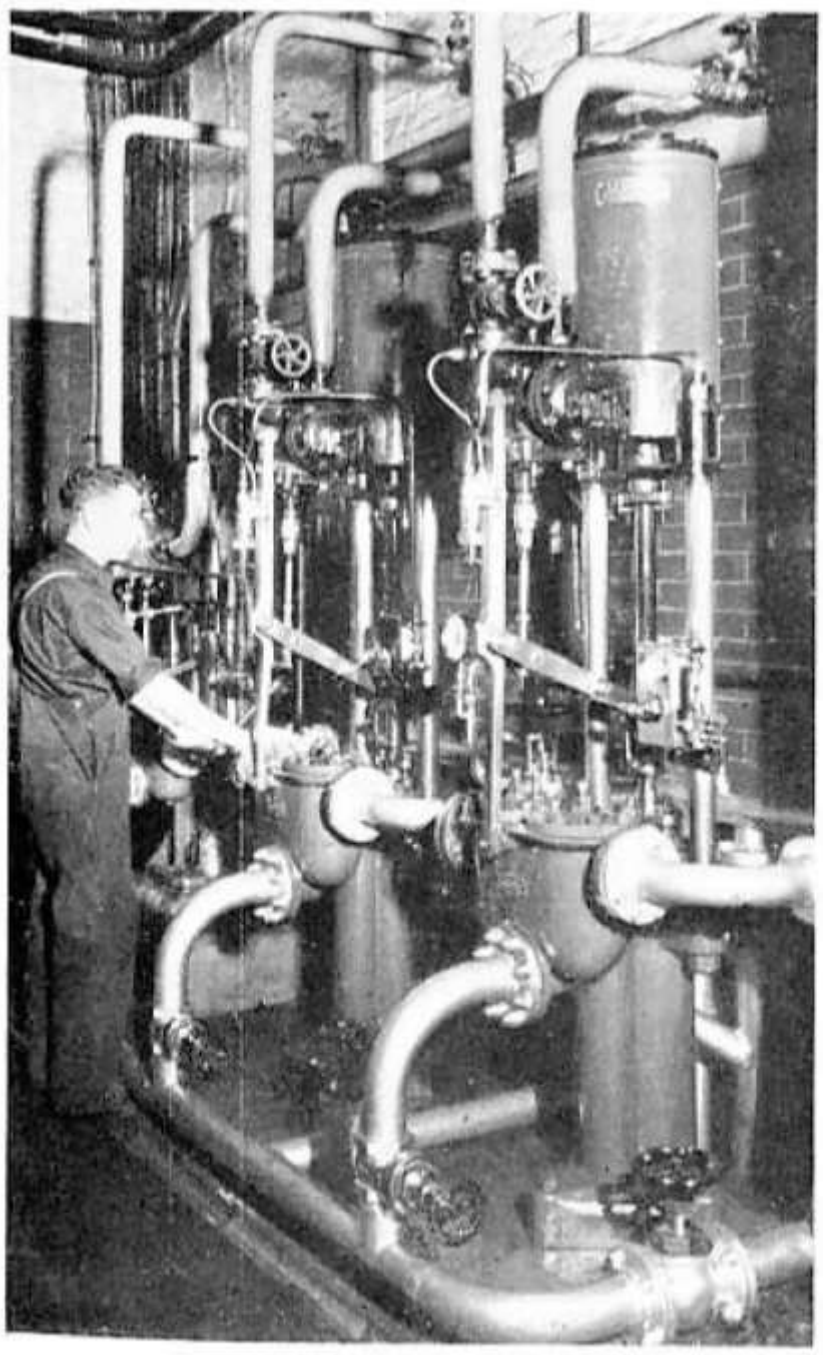
Power Behind the Scenes

HOW MANY people, I wonder, realise how pleasantly warm their shop or office is, or give a thought to what goes on night and day behind the scenes to ensure their warmth? In order to have a clearer picture of this activity behind the scenes, let us pay a short visit to some places in the factory which are probably entirely unknown to the majority.

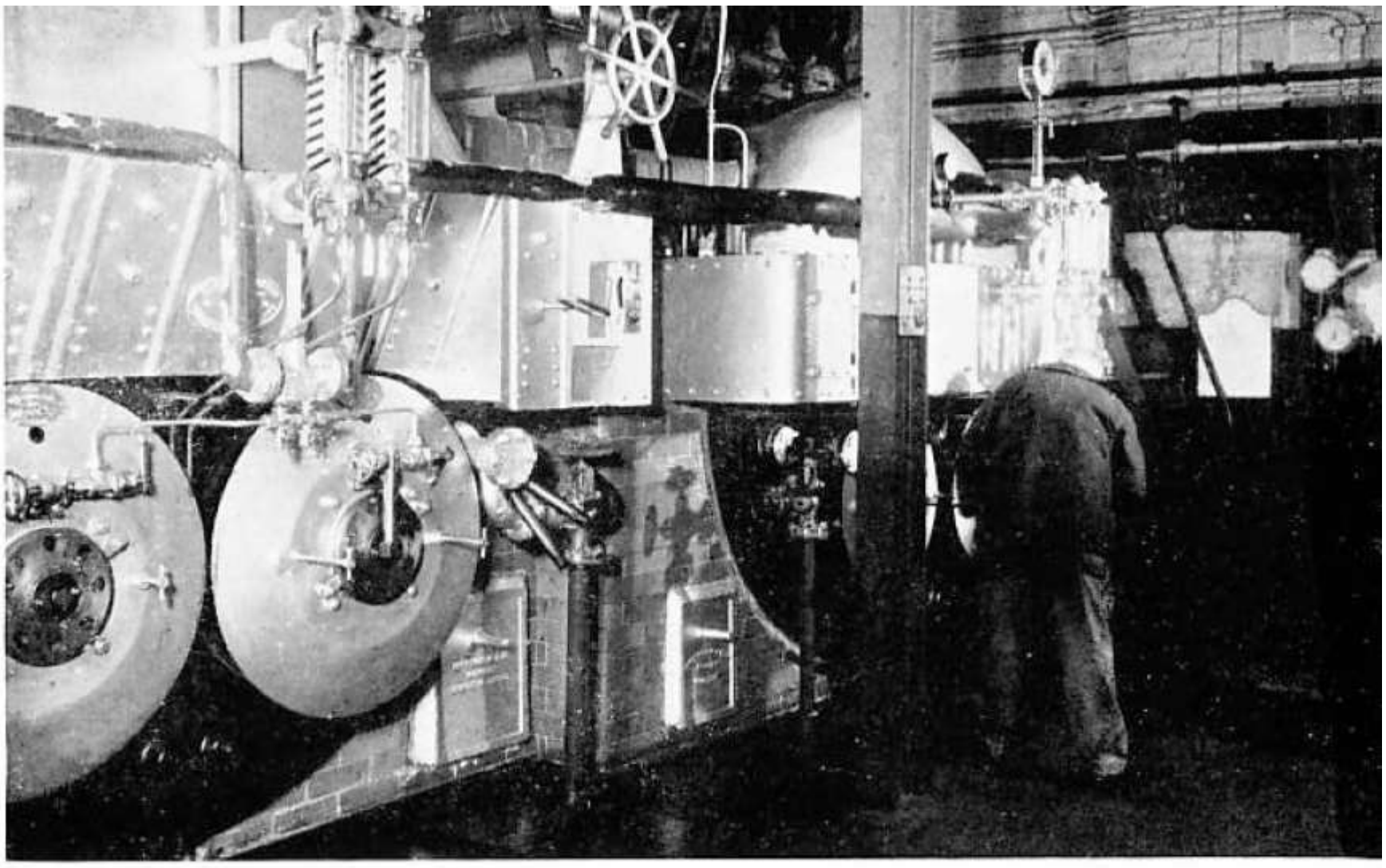
Four-fifths of the Works draws its heat from the main boiler house behind the Power House which is itself across the railway siding from the main shops. The boilers originally fitted here were used in conjunction with turbo generators for supplying D.C. power to the factory. With the growth of the Works and with A.C. power superseding D.C. the necessity for the turbo generators gradually diminished until in 1946 they became redundant. Coupled with this expansion of the factory and the diminution in the use of the boilers for power generating purposes the use of steam as a heating agent started, and grew, so that now the sole function of the five boilers of the Power House is to supply steam for space heating and processing.

The method of firing these boilers has also changed, having passed from hand firing with best steam coal to mechanical firing with a lower grade of fuel and finally to fuel oil. Oil is much the most convenient and certainly the cleanest method of firing, though perhaps a little more complicated. It requires more knowledge than for just shovelling coal. The oil is pumped from storage tanks,

Reg Richards checking the main workshops calorifier temperatures



Ted Bearman cleaning down feed water pumps in the Main Boiler House



H. J. McCarthy watches Nobby Clark cleaning carbon out of a furnace in the Main Boiler House

heated, filtered, and fed to the boilers under sufficient pressure for it to atomise at the burners. The necessary air to complete combustion is drawn into the furnaces by a fan at the base of a 120-foot chimney.

Water is supplied to the boilers by three feed pumps; the number of pumps in use at any one time depends on the rate at which steam is being generated, an average figure being around 16,000 pounds per hour.

From the main boiler house nine separate steam supplies are led to various parts of the Works; from here the heat is extracted in various ways and the resulting condensed water is returned to the boiler house. One of these lines ends in a room below the W.I.P. stores, where a system of calorifiers, condensers, and circulating pumps has recently been installed to replace three coke fired hot water boilers. This, which is the largest single unit, supplies heat for the offices, Test, Assembly, Jobbing Shop, Instrument Shop, and all the stores. It is one of the most modern and economical units, as the temperature of the hot water supplied to the radiators is controlled mainly by the temperature of the outside air. Any rise of outside temperature automatically reduces the amount of steam passing into the system and vice versa. Unfortunately it cannot allow for the heat generated by processes in the different shops when so many departments work under varying conditions on the same supply. Slight differences of temperature are therefore bound to arise. In a building such as the New Building 46, where a similar unit on a smaller scale has been installed, the system is ideal and can be worked with a minimum of attention.

Marconi House has a separate installation and draws its heat from a small but similar plant between the machine shop and H.16 section on the ground floor. Here the control is not automatic, the temperature being adjusted manually for changes in outside temperature.

In half the first-floor rooms above the main assembly shop, low pressure steam is used directly in the radiators which are kept constantly at a temperature of 200° F. No adjustment of this tempera-

ture is possible—the radiators are either "on" or "off".

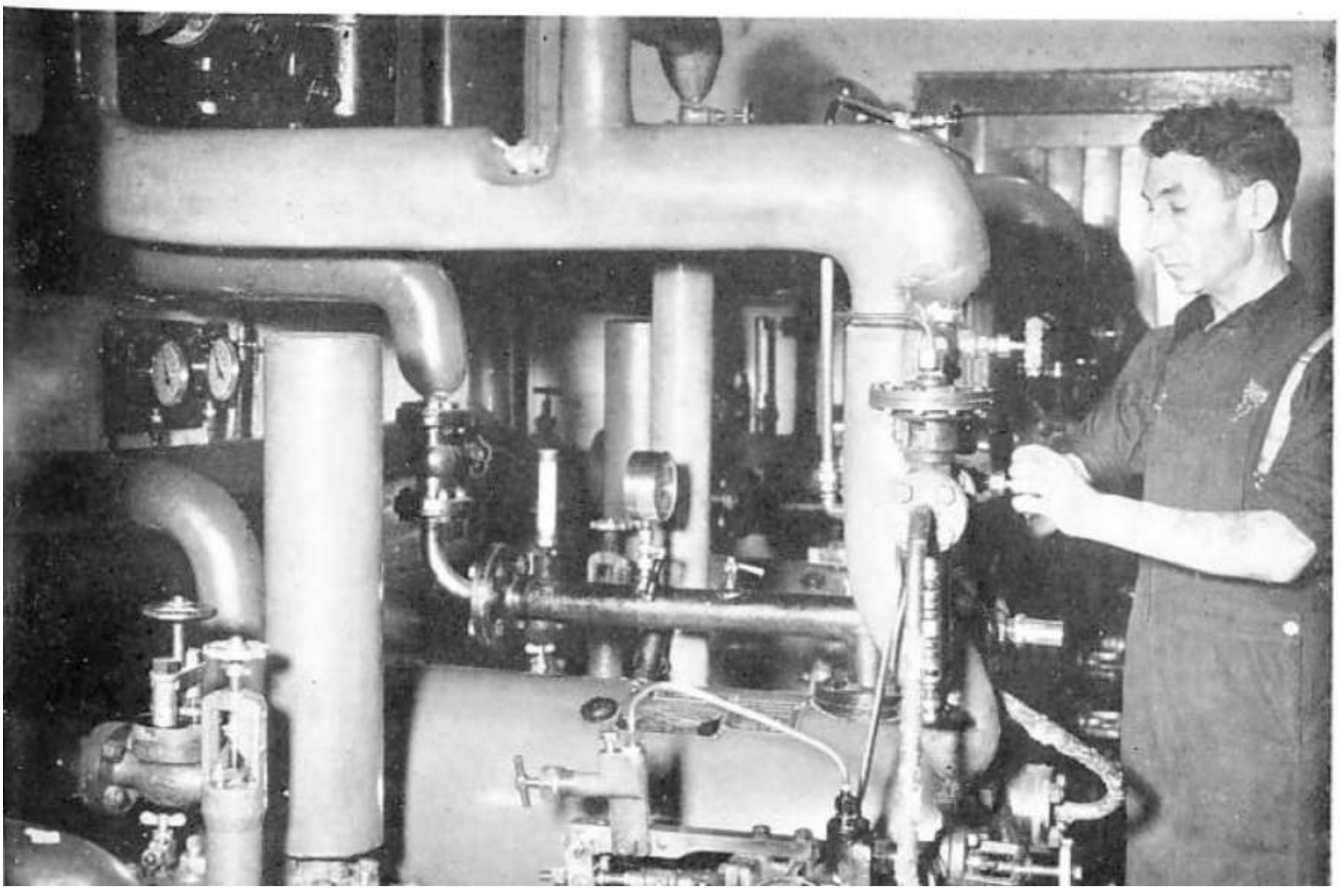
In some shops heating is obtained by circulating air over steam-heated batteries, whence it is fed directly into the shop or through trunking to different points. By means of a change-over switch air can be drawn from the shop and re-circulated or drawn fresh from outside. In both cases there is the advantage of being able to get rid of stale air under summer conditions when the heating is shut off.

There is still a small part of the Works not heated from the main Boiler House. The Design and Development and the Valve Test buildings have their own coke-fired boilers. These boilers perform the same function as the steam heated calorifiers but naturally require much more attention. It is necessary regularly to feed and clean the fires and to adjust the draught according to prevailing conditions. Otherwise the actual heating systems in the shops supplied from this source remain the same except that it takes longer to raise or lower the temperature because the control is much slower.

Fred Massey cleaning his fires. These are the old type coke boilers which heat the Design and Development and Valve Test buildings

It will be seen that the whole heating system is comprehensive and complicated, and the small body of men who work it do a fine job in maintaining the regular temperatures in which we work.

Ted Bearman adjusting the fuel oil pressure supply to furnaces, Main Boiler House



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